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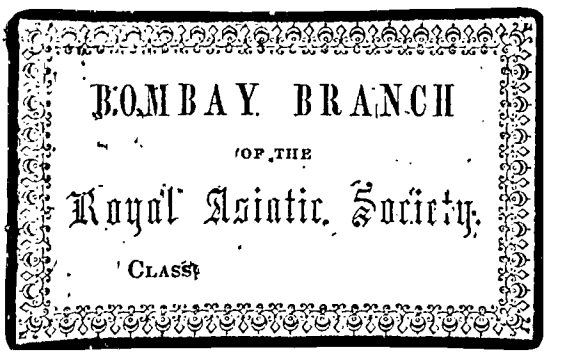

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THE

INTERNATIONAL SCIENTIFIC SERIES.

VOL. LXI.

A MANUAL

OF THE

BRITISH DISCOMYCETES

WITH DESCRIPTIONS OF ALL THE SPECIES OF

FUNGI

HITHERTO FOUND IN BRITAIN, INCLUDED IN THE FAMILY

AND

ILLUSTRATIONS OF THE GENERA

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ac.

BY

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1887

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PREFACE.

THE design of this work is to provide the English student with the means of acquiring a knowledge of the Discomycetes of Britain. The fifth volume of "English Flora," Berkeley's "Outlines," and Cooke's "Handbook," each well served this purpose in its time, and I indulge the hope that the present work may be equally useful.

No trouble has been spared in verifying and extending microscopic observations of the morphology, for in no instance where an authentic specimen was accessible has the opportunity of examining it been neglected. The readiness with which the Rev. M. J. Berkeley, my lamented friend the late Mr. C. E. Broome, and Dr. M. C. Cooke have entrusted to me some of their unique specimens, calls for my grateful acknowledgment; as does the kindness of the Kew and British Museum authorities, in allowing me at all times ready access to their important herbaria.

When Dr. M. C. Cooke became aware of my intention to undertake this work, he not only generously handed over to me the whole of his valuable manuscript notes,

collected with a view of publishing a new edition of the "Handbook," but afforded me at all times his valuable advice and assistance. How far these advantages have been utilized must be left to the judgment of the reader.

The subject of classification will not fail to awaken some controversy. As every author has his own views, I may be permitted to have mine. To adhere as closely as possible to the long-accepted Friesian system has been the practice of English authors; but this has been carried a little too far, owing to our "insular prejudices," and the time has come when a new departure must be made. While avoiding the fondness for innovation displayed by our Teutonic, and indeed, though in a less degree, our Gallic, neighbours, I have retained in the form of subgenera some of their more useful groups. I foresee many objections that can be urged to the method adopted, but prefer to let it stand on its own merits rather than enter here into a lengthened justification.

Many of the diagnoses have been altered or added to without reserve, where it appeared to me necessary, and others have been borrowed from one or other of the authors cited in connection with them. Professor Karsten's "Mycologia Fennica" and M. Boudier's "Mémoire sur les Ascobolés" have been of great assistance, the former especially in the measurement of sporidia.

The habitats are chiefly those of "English Flora," Cooke's "Handbook," Berkeley and Broome's "Notices of British Fungi," with such as have come within my own knowledge. To have added those contained in the

various local floras would have occupied too much space, besides which many of them are too unreliable.

My thanks are due to the following gentlemen for much valuable help:—the Rev. W. A. Leighton, Mr. C. B. Plowright, the Rev. J. Stevenson, the Rev. Dr. Keith, Professor James, W. H. Trail, and many others, besides those already mentioned.

As errors, in spite of all one's care, will creep into a work of this kind, I shall take it as an act of kindness on the part of those who will point them out, with the view of correcting a second edition should it ever be called for.

WILLIAM PHILLIPS.

CANONBURY, SHREWSBURY,
August, 1887.

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ABBREVIATIONS.

c.i. = *cum icone*, with a figure.
l.c. = *loco citato*, in the place quoted.
exs. = *exsiccati*, dried specimens.
μ = the Greek *mu*, indicates micromillimetres, one of which = ·001 mm. = $\frac{1}{25400}$ of an inch.
! denotes that the plant has been examined by the author, and seen from the localities named.

A MANUAL

OF THE

BRITISH DISCOMYCETES.

DISCOMYCETES. Fries.

RECEPTACLE cupulate, applanate, mitrate, stipitate, sessile, or immersed; hymenium superior, more or less exposed; substance fleshy, waxy, gelatinous, or rarely cartilaginous; asci cylindrical or clavate, containing usually 8 sporidia (rarely 4, 16, 32, or more).

Name—From δίσκος, a disc, and μύκης, a fungus.

Order I.—HELVELLACEI. Fries.

Receptacle vertical, stipitate, pileate, mitrate, or claviform; bearing the hymenium on the upper surface, which is always exposed; substance between fleshy and waxy, rarely gelatinous.

Name—From the typical genus, *Helvella*.

ARRANGEMENT OF THE GENERA.

I. *Morchella*. Dill.
II. *Gyromitra*. Fries.
III. *Helvella*. Fries.
IV. *Verpa*. Swartz.
V. *Leotia*. Fries.
VI. *Mitrula*. Fries.
VII. *Spathularia*. Pers.
VIII. *Leptoglossum*. Cooke.
IX. *Geoglossum*. Pers.
X. *Rhizina*. Fries.

KEY TO THE GENERA OF HELVELLACEI.

	Pileus clavate	1
	Pileus spathulate	*Spathularia.*
	Pileus capitate	3
	Pileus sessile and applanate	*Rhizina.*
1.	Hymenium confluent with the stem	2
2.	Hymenium and stem black	*Geoglossum.*
	Hymenium and stem brightly coloured	*Leptoglossum.*
	Pileus covered with deep angular pits	*Morchella.*
3.	Pileus covered with deeply folded, undulating ribs	*Gyromitra.*
	Pileus nearly even	4
	Pileus deflexed, free, saddle-shaped	*Helvella.*
4.	Pileus deflexed, free, conical	*Verpa.*
	Pileus globose or subclavate	5
	Pileus globose, margin revolute	*Leotia.*
5.	Pileus globose or subclavate, margin contiguous with the stem	*Mitrula.*

GENUS I.—MORCHELLA. Dill.

Receptacle stipitate, pileate, clavate, globose, or conical; clothed above by the deeply folded and pitted hymenium; substance between waxy and fleshy; asci cylindrical; containing (in British species) 8 sporidia. (Plate I. fig. 1.)

Large fungi, 2 to 10 inches high, growing on the ground in spring; firm, not soon decaying, with rather a pleasant odour, and esculent. The deep, angular pits on the hymenium readily distinguish them from their allies.

Name—Latinized from the German *Morchel.*

ARRANGEMENT OF THE SPECIES.

A. Pileus adnate at the base	species 1–4
B. Pileus free at the base	„ 5–6

KEY TO THE SPECIES.

	Pileus adnate at the base	1
	Pileus partly free	4
1.	Stem short	2
	Stem elongated	3
2.	Pileus with primary longitudinal ribs and squarish pits	*conica.*
	Pileus without primary longitudinal ribs, pits somewhat pentagonal	*esculenta.*
3.	Pileus subconical, brown	*crassipes.*
	Pileus subglobose, tawny	*Smithiana.*
4.	Stem very large and pruinose	*gigas.*
	Stem smaller and nearly even	*semilibera.*

A. PILEUS ADNATE AT THE BASE.

1. *Morchella esculenta.* (Linn.)

Pileus round, ovate, or oblong, adnate at the base to the stem; ribs firm, anastomosing, intervals forming pits; stem even; asci cylindrical; sporidia 8, elliptic, 20—22 × 10μ; paraphyses filiform, slightly thickened above. (Plate I. fig. 1.)

Phallus esculentus—Linn., "Suec.," 1262; Schæff., t. 199; Bolt., t. 91. *Morchella esculenta*—Pers., *l. c.*; Fries, "Sys. Myco.," ii. p. 6; Tratt., "Essb. Schw.," p. 268, f. EE; Harzer, t. 50; Favre-Guill., 47; Vitt., "Mang.," t. xiv. f. 5, xiii. f. 1-3; Lenz, figs. 64, 65; Rabh., "Krypt. Flo.," i. p. 382; Hussey, i. t. 13; Badham, t. 12, f. 6; Fries, "At. Sv.," t. 54; Cooke, "Handbk.," p. 655, c. i.; "Mycogr.," f. 312, 313; Karst., "Myco. Fenn.," p. 32; Quelet, "Champ.," pt. i. p. 382; Gill., "Champ.," p. 15, c. i.

Exsiccati—Cooke, "Fung. Brit.," ed. i. 645, ed. ii. 181; Fckl., "F. Rh.," 1243; Karst., "Fung. Fenn.," 139; Phil., "Elv. Brit.," 1; Rav., "Fung. Car.," i. 36; Rehm., "Asco.," 501; Thum., "Mycoth. Univ.," 714; Ellis, "N. A. Fungi," 979.

Odour faint, taste grateful. Stem rarely hollow, or, except in the young state, stuffed; one inch long (but very variable); soft, white, squamulose on the surface; not truly striate, sometimes equal, sometimes attenuate; pileus more or less ovate, obtuse; ribs frequently anastomosing, without transverse ribs; but as regards form, magnitude, and colour, very variable (Fries, *l. c.*).

On the earth in spring and summer.

Name—*Esculentus*, esculent.

Blair Athol (Dr. Greville); Castle Rising, Norfolk! Terrington, Norfolk (C. B. Plowright). Witchingham, Norfolk (Mr. F. Norgate). Fotheringhay (Rev. M. J. Berkeley). Cambridge (Mr. J. Ball). Audley End (Rev. J. Leefe). Warwick (Mr. Spencer Perceval). Stainton, Cumberland; Ambrose, Cumberland (Dr. Carlyle).

Var. *a. rotunda.* Pers.

Pers., "Syn. Fung.," 619; Mich., t. 85, fig. 1.; Gled., "Meth.," 61, t. 11, f. A (left-hand lower figure); Sow., t. 51 (left-hand figure); Grev., t. 68; Barla, t. 42, f. 1–7; Cooke, "Mycogr.," f. 313; Gill., "Champ. Icon."

Exs.—Thum., "Fung. Aus.," 313.

In woods and bushy places, chiefly in a sandy soil, Spring. Esculent. Colour whitish pallid; when dry straw-coloured, or pale yellow.

Name—*Rotundus*, round; from the round pileus.

Langholm, in Eskdale; Lugton Wood, near Dalkeith (Lightfoot). Banks of the river Almond at Foxhall (Capt. Wauch). North Wootton, Norfolk! (Mr. C. B. Plowright). Near Chislehurst (Mr. F. Currey).

2. *Morchella conica.* Pers.

Pileus conical, terete, oblong, adnate at the base; primary ribs longitudinal, obtuse, secondary forming transverse folds; pits elongated, narrow, plicato-lacunose; stem subterete, cylindrical, whitish; asci cylindrical; sporidia elliptic, slightly oval, 20 × 12μ; paraphyses enlarged upwards.

Morchella esculenta, δ *conica*—Fries, "Sys. Myco.," ii. 7. *Morchella conica*—Pers., "Comest.," 257; Barla, t. 42, f. 8–10; Favre-Guill., 49; Kromb., t. 16, f. 7–10; Sv., "Bot.," t. 258; Cooke, "Mycogr.," f. 315; Gill., "Champ.," p. 17, c. i.; Pat., p. 69, f. 160. *Morchella ceracea*—Kromb., t. 16, f. 11, 12. *Morchella continua*—Tratt., "Austr.," t. 6, f. 11. *Morchella rigida*—Kromb., t. 16, f. 13, t. 17, f. 1–2; Quelet, "Champ.," pt. i. p. 381. *Morchella acuminata*—Kickx.; Gill., "Champ.," p. 17, c. i.

On the ground. Esculent. Three to four inches high.

Name—*Conus*, a cone; from the cone-shaped pileus.

Woods at Westbury, near Bristol (Mr. C. E. Broome). Near Mansfield, Notts. (Mr. F. Currey). Sluie, Scotland (Rev. Dr. Jas. Keith). Forres, Scotland (Dr. M. C. Cooke).

Var. *a deliciosa.* Fries.

Pileus subcylindrical, acute; stem short; paraphyses slender.

Morchella deliciosa—Fries, "Sys. Myco.," ii. 8; Cooke in "Trans. Bot. Soc. Edin.," x. pp. 440; "Mycogr.," f. 320; Kromb., t. xvi. f. 17–19; Quelet, "Champs.," pt. i. p. 381; Gill., "Champ.," p. 16, c. i. *Fungus cavernosus*—Weinm., "Herb.," t. 553, f. 1. *Morchella crispa*—Kromb., "Schw.," t. 5, f. 25, 26. Vitt., "Mang.," t. xiv. f. 6.

Exs.—*M. costata*—Kze. and Schm., No. 193.

In grassy places. Spring. Esculent.

Name—From the French *delicieuse*, on account of its flavour.

Kinburn, St. Andrews, 1878 (Rev. M. L. Anderson).

3. *Morchella crassipes.* Pers.

Pileus subconical, brown, adnate at the base; ribs irregularly undulating, thick; pits large, variable in form, deep, the bottom celluloso-plicate; stem large, tall, incrassated at the base, lacunose, glabrous, somewhat flesh-coloured; asci cylindrical; sporidia 8, elliptic, yellowish, 24 × 12μ; paraphyses barely enlarged upwards.

Morchella crassipes—Pers. "Syn. Fung.," p. 621; Fries, "Sys. Myco.," ii. 9; Cooke, "Handbk.," No. 1939; Kromb., "Schw.," t. 16, f. 1; Harzer, t. 78; Barla, t. 42, f. 11; Cooke, "Mycogr.," fig. 319; Gill., "Champ.," p. 16, c. i. *Phallus crassipes*—Ventenant, p. 509, f. 2.

On the ground. Spring. Esculent. Attaining a height of 12 inches.

Name—*Crassus*, thick, *pes*, a foot; thick stemmed.

Kingskerswell, near Newton Abbot, Devonshire (Miss L. C. Lott). Brockley Combe, near Bristol (Mr. C. Bucknall). Castle Rising, Norfolk! (Mr. C. B. Plowright).

4. *Morchella Smithiana.* Cooke.

Pileus subglobose, tawny, adnate at the base; ribs irregular, undulating, thick; pits polymorphous, deep,

plicate at the bottom; stem large, tall, thickened at the base, hollow, attenuated upwards, sulcate, tomentose, white or flesh-coloured; asci cylindrical; sporidia elliptic, even, 17—20 × 8—11μ; paraphyses slightly thickened above.

In a hedgerow. Spring. Esculent.

Morchella Smithiana—Cooke, "Mycogr.," fig. 318; "Grevillea," xii. 98. *Morchella crassipes*—Smith in *Journal of Botany*, 1868, t. 73.

A fine, handsome species, reaching a height of 12 and a diameter of 7 inches.

Name—After Mr. Worthington G. Smith.

Kingerswell, Devon (W. G. Smith). Terrington St. Clements (C. B. Plowright). Malton, Yorkshire (Capt. Taylor).

B. PILEUS FREE AT THE BASE.

5. *Morchella gigas.* Pers.

Pileus conical, free at the base, which is somewhat undulate; ribs longitudinal, anastomosing; pits large, elongated, lacunose within; stem stout, long, enlarged downwards, sulcate, dirty white, covered with ferruginous squamules, hollow; asci cylindrical; sporidia 8, elliptic, 22—27 × 12—16μ; paraphyses stout, septate, thickened at the summit.

Morchella gigas—Pers., "Syn. Fung.," p. 619; Fries, "Sys. Myco.," ii. p. 11; Cooke, "Mycogr.," fig. 328; B. and Br., "Ann. Nat. Hist.," No. 1921. *Phallus squamosus*—Ventenant, p. 511. *Phallus gigas*—Batsch, "El.," 131. *Phaloboletus esculentus*—Mich., "Gen.," t. 84, f. 1. *Verpa speciosa*—Vitt., "Mang.," t. 15, f. 6, 7. *Morchella patula*—Tratt., "Essb. Schw.," 173, t. FF. *Mitrophora gigas*—Lev., "Ann. Sc. Nat.," 1846, p. 250; Gill., "Champ.," p. 19, c. i.

Exs.—Fckl., "F. Rh.," 2089.

On the earth in sandy places. Spring.

A large species, attaining a height of 8 inches; the pileus is smoky brown, with prominent longitudinal ribs,

united by transverse ribs, the intervals forming irregular oblong pits; the height varies from 2 to 3 inches, the width about 2¼ inches; the stem is hollow, about 1 inch wide at the top, and 2½ inches at the bottom, sulcate, coated with rust-coloured squamules. It is said to be esculent.

Name—γίγας, a giant; from the large size.

Coed Coch, North Wales (Mrs. Lloyd Wynn). North Wootton! (Mr. C. B. Plowright).

6. *Morchella semilibera.* D. C.

Pileus conical, free half-way up; ribs longitudinal, forming oblong pits, which are veined within; stem nearly even; asci cylindrical; sporidia 8, elliptic, 22×14μ; paraphyses scarcely thickened above.

Morchella semilibera—D. C., "Flo. Fr.," ii. 212; Fries, "Sys. Myco.," ii. 10; Vitt., "Mang.," t. xiv. figs. 1–4; Cooke, "Mycogr.," fig. 321; Quelet, "Champ.," pt. i. p. 381. *Morchella patula*—Cooke, "Handbk.," No. 1940? *M. rete*—Pers., "Myco. Eur.," i. 205. *M. hybrida*—Pers., "Syn. Fung.," p. 620; Grev., t. 89. *Phallus rete*—Batsch, "El.," p. 131. *Phalloboletus esculentus*—Mich., "Gen.," t. 84, f. 2. *Helvella hybrida*—Sow., "Fung.," t. 238. *Phallus patulus*—Gled., "Meth.," 59. *Mitrophora semilibera*—Lev., "Ann. Sc. Nat.," 1846, p. 250; Gill., "Champ.," p. 19, c. i.

Exs.—Cooke, "Fung. Brit.," ii. No. 361; "Erb. Crit. Ital.," i. 270, ii. 239; Rabh., "Fung. Eur.," 1417; Desm., "Crypt. Fr.," i. 424; Fckl., "F. Rh.," 2088; Phil., "Elv. Brit.," 51.

On the ground. Spring. Esculent.

From 2½ to 5 inches high; pileus short (about 1 inch), rather acute, lutescent, when dry dirty fulvous; stem whitish.

Name—*Semi*, half, *liber*, free; the pileus being free from the stem half-way up.

King's Cliffe, Northamptonshire (Rev. M. J. Berkeley). Foxhall (Capt. Wauch). Near Darlington (Mr. Robson). Badsey (Mr. Rufford). Richmond, Yorkshire (Rev.

J. E. Leefe). Apethorpe, Northamptonshire (Rev. M. J. Berkeley). Twycross (Rev. A. Bloxam). Orchardleigh, Somersetshire; Clifton Down, Bristol (Mr. C. Bucknall). Wetherby, Yorkshire (Dr. H. F. Parsons). North Wootton, Norfolk! (Mr. C. B. Plowright). Eaton Constantine, Salop! (Mr. W. E. Beckwith).

Genus II.—Gyromitra. Fries.

Receptacle pileate, stipitate, deflexed, bullato-inflated, clothed above by the hymenium; the ribs of the hymenium raised, gyrose, persistent; substance fleshy; asci cylindrical; sporidia 8, elliptic or elongate-elliptic, smooth (in British species); paraphyses linear. (Plate I. fig. 2.)

On the earth. Spring.

In the two British species the pileus is somewhat globose, supported by a short stout stem enlarged at the base. They are esculent, and very rare.

Name—γυρὸς, round, μίτρα, a turban; from the shape of the pileus.

Sporidia elliptic	*esculenta.*
Sporidia subfusiform	*gigas.*

1. *Gyromitra esculenta.* Fries.

Pileus inflated, irregularly undulated, gyroso-rugose, brown; margin annexed to the even villous stem; asci cylindrical; sporidia 8, oblongo-elliptic, biguttulate, 20 × 10μ; paraphyses thickened, and brown above. (Plate I. fig. 2.)

Gyromitra esculenta—Fries, "Summa Veg. Scan.," p. 346; Cooke, "Handbk.," No. 1842; "Mycogr.," fig. 328; Quelet, "Champ.," pt. i. p. 382. *Helvella esculenta*—Pers., "Comm.," p. 64; Fries, "Sys. Myco.," ii. 16; Karst., "Myco. Fenn.," 33; B. and Br., "Ann. Nat. Hist.," 825; Badham, "Fung.," ii. t. 12, f. 3–5; Harzer, t. 47; Barla, t. 43, f. 12, 13; Lenz, fig. 59, 60. *Elvela mitra*—Schæff., "Icon.," t. 160, 161. *Helvella phalloides*—Afz., "Act. Holm.," 1783, p. 303.

Exs.—Desm., "Crypt. Fr.," ii. 264; Rabh., "Fung.

Eur.," 1416; Fckl., "F. Rh.," 2087; Klotzsch, "H. M.," 138; Karst., "Fung. Fenn.," 526; Phil., "Elv. Brit.," 101.

On the ground. Spring. Esculent.

The form of the sporidia at once distinguishes this from the following species. In this, they are elliptical, and obtuse at the ends; in that, subfusiform, and almost acute at the ends.

The Rev. M. J. Berkeley says, "*Gyromitra esculenta*, though frequently eaten, is not always safe—a circumstance which may depend rather on peculiarity of constitution than on any intrinsically deleterious property" (*Intellectual Observer*, 1866, p. 32).

Name—*Esculentus*, esculent.

Weybridge Heath, on sandy ground, April (Mr. F. Currey). Forres, Scotland! (Rev. Dr. Keith).

2. *Gyromitra gigas.* (Kromb.)

Pileus large, lobed, undulato-plicate, or curled, pallid, whitish, or ochraceous; lobes sub-adnate to the stem, adpressed, somewhat undulating; stem thick, cellular, waxy, whitish, externally lacunose, subglabrous; asci cylindrical; sporidia 8, elliptic, fusiform, 32 × 10—12μ; paraphyses slightly enlarged above.

Helvella gigas—Kromb., "Schw.," iii. 28, t. 20, f. 1–5; Currey, "Linn. Trans.," xxiv. t. 25, f. 25; Cooke, "Handbk.," No. 1943; Quelet, "Champ.," pt. i. p. 382. *Gyromitra gigas*—Cooke, "Mycogr.," fig. 327.

On the ground. Esculent.

Name—γίγας, a giant; from the large size.

Coed Coch, North Wales (Mrs. Lloyd Wynn). Blackheath Park (Mr. Frederick Currey).

Genus III.—Helvella. Fries.

Receptacle pileate, supported by the centre, deflexed, sub-inflated, sinuous, concave, and barren beneath, clothed above the margin by the hymenium; hymenium even, persistent; stem always present, united to the

centre of the pileus, hollow or filled with a floccose medulla; the adult pileus mitre-form, compressed, lobate, dry, pruinose beneath; substance waxy-membranaceous; asci cylindrical; sporidia 8, smooth; paraphyses linear. (Plate I. fig. 3.)

The species vary in size from 1 to 7 inches in height; they are persistent, but fragile; their odour is not offensive. They grow on the ground or on wood, in spring and autumn. Most of them are reputed to be edible.

Name—A Latin name used by Cicero to denote some kind of fungus.

ARRANGEMENT OF THE SPECIES.

A.	Stem stout, sulcate	species 1–4
B.	Stem stout, nearly even	„ 5–7
C.	Stem slender, even	„ 8–11

KEY TO THE SPECIES.

	Stem stout	1
	Stem slender	2
1.	Stem sulcate	3
	Stem nearly even	4
	Pileus mouse-colour	*elastica.*
2.	Pileus black, cinereous, or fuliginous	5
	Pileus brown	6
	Pileus pallid-white	*crispa.*
3.	Pileus brown	*subcostata.*
	Pileus cinereous	7
	Pileus purplish brown	*infula.*
4.	Pileus spadicious	*monachella.*
	Pileus ochraceous	*guepinioides.*
5.	Pileus black	*atra.*
	Pileus fuliginous	*pulla.*
6.	Pileus brown, stem not tomentose	*Klotzschiana.*
	Pileus brown, stem tomentose	*ephippium.*
7.	Stem fistulose	*lacunosa.*
	Stem stuffed	*sulcata.*

A. STEM STOUT, SULCATE.

1. *Helvella crispa.* Fries.

Pileus deflexed, lobed, free, crisped, pallid; stem fistulose, costato-lacunose; asci cylindrical; sporidia 8, elliptic, 18 × 9μ; paraphyses filiform.

Helvella crispa—Fries, "Sys. Myco.," ii. p. 14; Berk., "Outl.," t. 21, fig. 4; Cooke, "Handbk.," No. 1944; Grev., t. 143; Vitt., "Mang.," t. 31, f. 1; Lenz, fig. 57; Badham, t. v. f. 1; Barla, t. 43, f. 1–5; Price, "Illus.," f. 57; Cooke, "Mycogr.," fig. 159; Quelet, "Champ.," pt. i. p. 383; Gill., "Champ.," p. 8, c. i.; Pat., p. 120, f. 270. *H. mitra*—Purt., "Midl. Flo.," iii. t. 16; Bull., t. 466, f. A. *H. leucophæa*—Tratt., "Austr.," f. 36.

Exs.—Fckl., "F. Rh.," 1242; Berk., "Brit. Fung.," No. 264; "Erb. Crit. Ital.," i. 464; Rabh., "Fung. Eur.," 239; Cooke, "Fung. Brit.," i. 555, ed. ii. No. 541. Phil., "Elv. Brit.," 102.

On the ground. Autumn. Esculent.

Solitary, large, 3 to 5 inches high; at first sight glabrous. Stem snow-white, becoming yellow in drying, stout, ventricose downwards, sulcato-costate, and lacunose; ribs plane fistulose; the dissected stem composed of many distinct tubes. Pileus deflexed, inflated, lobed; at first the margin is adnate to the stem, afterwards free, undulate, sinuato-contorted, and crisped. Esculent, savoury (Fries, *l. c.*).

Name—*Crispus*, curled, wrinkled; from the wrinkled pileus.

King's Cliffe (Rev. M. J. Berkeley). Kew Gardens (Sir Joseph Hooker). Beggar's Bush Lane and Haw Wood, near Bristol (Mr. C. Bucknall). Hampstead, Dinmore, Herefordshire, Epping Forest, and Lyndhurst (Dr. M. C. Cooke). Blackford Bridge, Woodside, and around Carlisle (Dr. Carlyle). Castle Rising, Norfolk! (Mr. C. B. Plowright). About Shrewsbury and Hereford!

3. *Helvella lacunosa.* Afz.

Pileus inflated, lobed, cinereous-black; lobes deflexed, adnate; stem fistulose, costate-lacunose; asci cylindrical; sporidia 8, elliptic, 18 × 10μ; paraphyses filiform, slightly enlarged above. (Plate I. fig. 3.)

Helvella lacunosa—Afz. in "Act. Holm.," 1783, p. 304; Klotzsch, "Flo. Bor.," t. 383; Fries, "Sys. Myco.," ii. p. 15; Holms., "Ot.," p. 45, t. 24; Cooke, "Handbk.,"

No. 1945; "Mycogr.," fig. 160; Weberb., t. 5, f. 2; Lenz, fig. 58; Barla, t. 43, f. 6–11; Quelet, "Champ.," pt. i. p. 383; Gill., "Champ.," p. 10, c. i.; Pat., p. 120, f. 271. *H. mitra*—Bull., t. 190, t. 466, f. B; Grev., t. 36. *H. nigra*—Berg., "Phyt.," t. 147. *Elvella mitra*—"Flo. Dan.," t. 116. *E. nigricans*—Schæff., "Icon.," t. 154.

Exs.—"Erb. Crit. Ital.," i. 465; Welw., "Crypt. Lusit.," 56; Berk., "Brit. Fung.," No. 265; Fckl., "F. Rh.," No. 1241; Rabh., "Fung. Eur.," 1810.

On the ground in woods, especially on burnt soil. Spring and autumn. Esculent.

Differs from the preceding, for a variety of which it may easily be taken, by the more regular pileus, 2 to 4 lobed, scarcely laciniate, lobes later becoming free, and especially by the colour. The stature generally smaller, afterwards becomes equally as tall as *Helvella mitra*, g. *pratensis* A. and S. Although, therefore, acute characters are wanting in nature, it is constant; it is also inferior in cooking (Fries, *l. c.*).

Name—*Lacunosus*, full of holes; from the pitted pileus.

Edgbaston (Withering). Edinburgh (Dr. Greville). Near Hereford! General Cemetery, Shrewsbury! King's Cliffe (Rev. M. J. Berkeley). Bungay (D. Stock). North of Ireland (Templeton). Around Carlisle (Dr. Carlyle). Hitchin (Prof. Henslow). Reading and Epping Forest, where it is plentiful and very fine (Dr. M. C. Cooke). Haw Wood, near Bristol (Mr. C. Bucknall). Castle Rising and Sandringham, Norfolk! (Mr. C. B. Plowright).

3. *Helvella sulcata*. Afz.

Pileus deflexed, lobed, adnate; stem stuffed, furrowed with equal ribs; asci cylindrical; sporidia elliptic, uniguttulate, 20×10—12μ; paraphyses linear, septate, thickened and brown above.

Helvella sulcata—Afz. in "Vet. Ac. Handbk.," 1783, p. 304; B. and Br., "Ann. Nat. Hist.," No. 764, 1152; Cooke, "Handbk.," No. 1946; "Mycogr.," fig. 161; Fries, "Sys. Myco.," ii. 15; Quelet, "Champ.," pt. i. p. 383;

Gill., "Champ.," p. 10, c. i.; Pat., p. 121, f. 272. *H. monachella*—Thum., "Fung. Aus.," No. 11.

Exs.—Thum., "Fung. Aus.," No. 11; Roumg., "Fung. Gal.," 1209.

On the ground in woods. Autumn. Esculent?

Solitary, rarely gregarious, totally glabrous, certainly distinct from the preceding. Stem stuffed, 2 inches long, 4 to 5 lines thick, terete, attenuated upwards, ploughed by deep longitudinal furrows; ribs slender, solid, not lacunoso-fistulose, as in the preceding; pileus deflexed, equally 2 to 3 lobed, compressed, even, when dry darker, sides of the interior adnate to the stem (Fries, *l. c.*).

Name—*Sulcatus*, made in furrows; from the furrowed pileus.

Andover (B. and Br., "Ann. Nat. Hist.," No. 764). Glamis, Scotland (Rev. J. Stevenson). Bowwood (Mr. C. E. Broome). Near Hereford! New Pitsligo, Scotland (Rev. J. Fergusson). Kew Gardens (Dr. M. C. Cooke).

4. *Helvella subcostata.* Cooke.

Pileus deflexed, free, sublobate, even, the under side paler, ribbed, and veined; stem equal, longitudinally ribbed; asci cylindrical; sporidia elliptic, obtuse, uniguttulate, 18—20 × 10μ; paraphyses thickened and brown above.

Helvella costata—Afz. in "Herb. Berk." (non Schweinitz).

Pileus 2½ inches broad; stem 2½ inches long. The under side of the pileus has branching ribs, and is quite free from the stem.

Name—*Sub*, somewhat, *costatus*, ribbed; from the somewhat ribbed pileus.

Glamis, Hunter's Hill (Rev. J. Stevenson). Andover (1856, "Herb. Berk.").

B. STEM STOUT, NEARLY EVEN.

5. *Helvella infula.* Schæff.

Pileus lobate, deflexed, even; margin adhering very closely to the stem, at length undulate, subcinnamo-

meous; stem enlarged upwards, stuffed, then hollow, smooth, often here and there irregularly lacunose, pallid, slightly villous; asci cylindrical; sporidia 8, elliptic, 23—25 × 12μ; paraphyses clavate at the apices, brown.

Helvella infula—Schæff., t. 159; Pers., "Syn. Fung.," f. 617; A. and S., p. 300; Karst., "Myco. Fenn.," p. 34; Fries, "Sys. Myco.," ii. p. 17 (part); Barla, t. 43, f. 14–16; Lenz, f. 61; Quelet, "Champ.," pt. i. p. 383; "Scott. Nat.," vi. 122.

Exs.—Karst., "Fung. Fenn.," 445; "Erb. Crit. Ital.," i. 330; Roumg., "Fung. Gal.," 1208. Phil., "Elv. Brit.," 151.

On the ground in woods. Autumn.

The Brandon specimens were very variable in form and size: pileus sometimes nearly globose, bullate, and wrinkled, at others expanded, and unequally lobed at the margin; the stem attenuated upwards or in the centre; varying in height from 3 to 7 inches; the paraphyses branched, septate, pyriform at the apices; sporidia furnished with two large guttulæ, 18—22 × 8μ. Probably esculent.

Name—*Infula*, fillet; from the shape of the pileus.

Rothimurchus, Scotland, and Brandon, Norfolk! (Mr. C. B. Plowright).

6. *Helvella monachella.* Fries.

Pileus deflexed, lobate, adnate, even, subspadiceous; stem hollow, even, glabrous, white; asci cylindrical; sporidia 8, elliptic, 18 × 10μ; paraphyses clavate, and brown apices.

Helvella monachella—Fries, "Sys. Myco.," ii. p. 18; Kromb., t. xix. f. 22–26; Lenz, fig. 62; Cooke, "Mycogr.," fig. 335; Quelet, "Champ.," pt. i. p. 383; Gill., "Champ.," p. 10, c. i. *M. monacella*—"Port. Hist.," x. c. 70. *Fungoides*—Mich., "Gen.," t. 86, f. 8. *Boletus albus*—Batt., t. 2, f. H. *Phallus monachella*—Scop., p. 476. β. *Helvella spadicea*—Schæff., t. 283; Pers., "Comm.," p. 113. *H. grandis*—Cum., "Act. Tur.," t. 2.

Exs.—Thum., "Fung. Aus.," No. 11.

On sandy ground in mountain woods. Spring and autumn. Esculent (?).

Nearest to the preceding, but well distinguished by the adduced forms and vernal growth. Stem 1 to 2 inches long, attenuated upwards, scarcely ½ an inch thick; at first round, then subcompressed, marked towards the base by a lacuna. Pileus at length crisped and undulate; variable in colour—brown spadiceous, violaceous, nigresceous, etc. (Fries, *l. c.*).

Name—*Monachus*, a monk; diminutive.

Old Roar Wood, St. Leonard's (Mr. F. Currey, in "Kew Herb.").

7. *Helvella guepinioides.* Berk. and Cooke.

Pileus entire, deflexed, free, ochraceous; stem elongated, equal, even, hollow, whitish; asci cylindrical; sporidia 8, elliptic 20 × 11μ; paraphyses clavate at the apices.

Helvella guepinioides. Berk. and Cooke in "Herb Berk."; "Mycogr.," fig. 337; Gill., "Champ.," p. 12, c. i.

On the ground. Edible (?).

"A very singular species, resembling a *Guepinia*; hence the name" (Cooke).

Name—*Guepinia*, a genus of fungi, εἶδος, likeness; Guepinia-like.

C. STEM SLENDER, EVEN.

(*a*) *Externally pruinose, furfuraceous, or glabrous.*

8. *Helvella elastica.* Bull.

Pileus free, even, inflated, at length acutely lobed; stem elongated, slender, attenuated upwards, pruinose; asci cylindrical; sporidia 8, elliptic, 20 × 10—11μ; paraphyses filiform, slightly enlarged above.

Helvella elastica—Bull., "Champ.," p. 289, t. 242; Fries, "Sys. Myco.," ii. 21; Cooke, "Handbk.," No. 1947; "Mycogr.," fig. 163; Kromb., t. 21, f. 21; Karst., "Myco. Fenn.," p. 35; Fckl., "Symb. Myco.," p. 333; Quelet,

"Champ.," pt. i. p. 384; Gill., "Champ.," p. 13, c. i.; Pat., p. 40, f. 100. *H. lævis*—Berg., "Phyt.," t. 149. *a. albida.* *H. albida*—Pers. "Syn. Fung.," p. 616; "Obs. Myco.," i. p. 71; Schum., "Saell.," ii. p. 411. *b. pallide fuliginea.* *H. fuliginosa*—Dicks., "Crypt.," ii. p. 25; Sow., t. 154; With., "Arr.," iv. p. 341; Schæff., t. 220. *c. fusca*—Bull., *l. c.*

Exs.—"Erb. Crit. Ital.," 233; Desm., "Crypt., Fr.," i. 425; Berk., "Brit. Fung.," 266; Cooke, "Fung. Brit.," i. 233; Fckl., "F. Rh.," 137.

Slender, 3 to 4 inches high, elastic, pellucid. Stem when young stuffed, becoming fistulose, base incrassated, often irregularly lacunose. Pileus hardly an inch broad, 2 to 3 lobed, frequently orbicular (Fries, *l. c.*).

Much resembling in some of its forms *Peziza macropus.*

On the ground in moist places in shady woods. Summer and autumn.

Name—From the French *elastique.*

Near Halifax (Bolton). Birdbrooke, Essex (Mr. T. Walford). Madingley (Relham). Hirsel Woods, Berwickshire (Miss Bell). Ragley Woods, near Pophills, Alcester (Purton). Bungay (D. Stock). Milton, Northamptonshire; Reading; Coed Coch, North Wales; Linlithgow (Rev. M. J. Berkeley). Moncreiffe, Scotland (Rev. J. Stevenson). Rackheath and Colney, Norfolk (Mr. C. B. Plowright). Epping Forest (Dr. M. C. Cooke). Haw Wood, near Bristol (Mr. C. Bucknall). Blackford Bridge, Cumberland (Dr. Carlyle). Woods near Hereford! Wrekin, Salop! Sufton Court! Forrest Walk, Dolgelly! Bomere, near Shrewsbury!

9. *Helvella atra.* König.

Fuliginous-black; pileus deflexed, adpressed on both sides, free, even beneath; stem stuffed, furfuraceo-villous; asci cylindrical; sporidia 8, elliptic, 17 × 8μ; paraphyses slightly thickened at the apices.

Helvella atra—König., "Zœga. Flo. Isl.," 20; Fries, "Sys. Myco.," ii. 19; Holms., "Ot.," ii. t. 25; Kromb.,

"Schw.," t. 21, f. 18–20; Cooke, "Mycogr.," f. 167; "Grevillea," vi. p. 127; Quelet, "Champ.," pt. i. p. 384; Gill., "Champ.," p. 11, c. i. *Helvella nigrescens*—Pers., "Syn. Fung.," p. 617; "Obs. Myco.," i. 71. *Elvela atra*—"Flo. Dan.," t. 534, f. 1.

Exs.—Rabh., "Fung. Eur.," 236; Fckl., "F. Rh.," 1238.

In moist woods. Summer and autumn.

Solitary, small, similar to *H. infula*. Stem 1 to 2 inches long, 1 to 2 lines thick, somewhat terete, even or irregularly lacunose, black, olivaceo-cinereous at the base. Pileus deflexed even from the first, not pezizoide (as in *H. Pezizoides*), compressed, margin forming two lobes, even, becoming slightly repand underneath, and when dry approaching an ashy grey (Fries, *l. c.*).

Name—*Ater*, black; from the black pileus.

Aviemor, Loch Killein, and Loch Laggan, Scotland (Dr. B. White).

10. *Helvella pulla*. Holms.

Pileus deflexed, free, lobed, undulated, fuliginous, underneath and also the middle of the stem nearly naked; asci cylindrical; sporidia 8, broadly elliptic, 16–18 × 13μ; paraphyses thickened above.

Helvella pulla—Holms., t. 26; Fries, "Sys. Myco.," ii. 20; Cooke, "Mycogr.," fig. 338. *H. cinerea*—Vill. "Delph.," p. 1045. *Fungoides pullum*—Mich., "Gen.," t. 86, f. 9.

On moist ground in woods; sometimes on old rotting trunks of trees. Summer and autumn. Esculent (?).

Medium size. Stem 2 inches long or a little more, terete, somewhat undulated, stuffed, but at length as usual fistulose, fuliginous, base often irregularly lacunose. Pileus 1 to 1½ inches broad, lobes deflexed, kidney-shaped, broadly emarginate, when young even, compressed; at length inflated and more undulated than most of the *Pezizoideæ* (Fries, *l. c.*).

Name—*Pullus*, blackish; from the blackish pileus.

King's Lynn! (Mr. C. B. Plowright).

11. *Helvella Klotzschiana.* Corda.

Pileus nearly two-lobed, deflexed, membranaceous, even, opaque, brown, margin repand, even beneath, and yellowish; stem slender, subcylindrical, pale yellow, clear white within; asci cylindrical; sporidia 8, elliptic, uniguttulate, 12—14 × 6μ; paraphyses clavate, with brown apices.

Helvella Klotzschiana—Corda in Sturm., "Flo.," iii. t. 57; Cooke, "Mycogr.," fig. 168; "Grevillea," x. p. 51. *Helvella elastica*—Rabh., "Fung. Eur.," No. 130.

Exs.—"Erb. Crit. Ital.," i. 137; Rabh., "Fung. Eur.," 130.

Easily known by the yellow stem and under side of the pileus.

Name—After J. H. Klotzsch.

In the Fernery, Coed Coch, North Wales (Mrs. Lloyd Wynn).

(*b*) *Externally villose.*

12. *Helvella ephippium.* Lev.

Pileus deflexed, two to three lobed, free, cinereous, villose beneath; stem cylindrical, even, villose, stuffed; asci cylindrical; sporidia 8, elliptic, 18 × 10μ; paraphyses thickened and filled with brown granules in the upper part.

Helvella ephippium—Lev., "Ann. Sc. Nat.," 1841, p. 240, t. 16, f. 7; B. and Br., "Ann. Nat. Hist.," No. 552; Cooke, "Handbk.," No. 1948; "Mycogr.," fig. 169; Gill., "Champ.," p. 13, c. i.; Pat., p. 168, f. 370.

Exs.—Winter, "Fungi Eur.," 1907.

Gregarious; smaller than most of the species, rarely exceeding 1 inch high; somewhat resembling *H. elastica* in a young state, but more velvety on the stem and under side of the pileus.

On the ground in woods. Summer and autumn. Esculent (?).

Name—*ἐφίππιος*, belonging to a horse; from the saddle-shaped pileus.

King's Cliffe and Apethorpe (Rev. M. J. Berkeley). Near Bristol (Mr. C. E. Broome). Sufton Court, Herefordshire! Thuxton, Herefordshire! Wrekin, Salop! Coed Coch, North Wales.

Genus IV.—Verpa. Swartz.

Receptacle clavato-pileate, supported in the centre, equally deflexed all round, conical, concave beneath, free, entirely clothed above with the hymenium; hymenium even or wrinkled, not ribbed, persistent; substance fleshy—membranaceous; stem always present, hollow, nearly distinct from the pileus; asci cylindrical; sporidia 8, elliptic; paraphyses filiform. (Plate I. fig. 4.)

The pileus in this genus is conical, neither inflated nor lobate, nearly even, with the margin pressed to the stem, but free (Cooke, "Mycogr.," p. 215).

Name—*Verpa*, a Latin word synonymous with *φαλλός*.

Three species 1–3

Key to the Species.

	Pileus obtuse at the summit	*digitaliformis.*
	Pileus subacute at the summit	1
1.	Stem yellow, equal	*conica.*
	Stem rufus, ventricose	*rufipes.*

1. *Verpa digitaliformis.* Pers.

Pileus campanulate, finger-shaped, rugulose, umber; stem equal, transversely squamulose; asci cylindrical; sporidia 8, elliptic, 23—25 × 20μ; paraphyses septate, clavate above, brown, granular within.

Verpa digitaliformis—Pers., "Myco. Eur.," 202, t. 7, f. 1.–3; Fries, "Sys. Myco.," ii. 24; Cooke, "Handbk.," No. 1949; "Mycogr.," fig. 364; Berk., "Outl.," t. 21, f. 6; Corda in Sturm., "Flo." t. 7, f. 6; Payer, fig. 380; Vitt., Mang.," t. 15, f. 1–3; Barla, t. 44, f. 1–6; Quelet, "Champ.," pt. i. p. 380; Gill., "Champ.," p. 20, c. i.

Exs.—Klotzsch, "Myco. Eur.," 1629; Rabh., "Fung. Eur.," 1113; "Erb. Crit. Ital.," ii. 340.

On hedge-banks. Spring.

Pileus at first nearly even, olivaceous-umber, dark at the apex. Stem obese, furnished at the base with a few subrufous radicles, white, with a slight rufous tinge marked with transverse rufous spots; smooth to the naked eye, but under a lens clothed with fine adpressed flocci, the rupture of which gives rise to the spots, which are, in fact, minute scales. In the mature plant the pileus is ¾ of an inch high, campanulate, digitaliform, or subglobose, more or less closely pressed to the stem, but always free, the edge sometimes inflexed so as to form a white border, wrinkled, but not reticulated, under side slightly pubescent; sporidia yellowish, elliptic; stem 3 inches high, ½ an inch or more thick, slightly attenuated downwards, loosely stuffed, by no means hollow ("Eng. Flo.").

Name—*Digitale*, a finger-stall, and *forma*, form; from the shape of the pileus.

2. *Verpa rufipes* (nov. sp.). Phil.

Pileus conical, rugulose, sublobate, umber, whitish and tomentose beneath; stem ventricose, rufus, squamulose, stuffed; asci cylindrical; sporidia 8, elliptic, faintly coloured, 22 × 13μ; paraphyses filiform, sub-equal, septate. (Plate I. fig. 4.)

Verpa digitaliformis—Phil. in "Elv. Brit.," exs. No. 52.

On hedge-banks. Spring.

The pileus is thin, wrinkled, dark umber, and stands well away from the stem; it is nearly white on the under side. The stem is much slenderer at the top than below, and is tinged within, at the base, with the rufus colour of the outside. Height about 1½ inches; broadest part of stem ⅜ of an inch; pileus ¾ of an inch high. This is intermediate between *conica* and *digitaliformis*.

Name—*Rufus*, reddish, *pes*, a foot; from the colour of the stem.

Terrington St. Clement's, and North Wootton! (Mr. C. B. Plowright).

3. *Verpa conica.* Swartz.

Pileus campanulate, nearly even, brown, margin subsinuate, yellow beneath, as well as the equal stem; asci cylindrical; sporidia 8, elliptic.

Verpa conica—Swartz, "Vet. Ac. Handl.," p. 136; Pers., "Myco. Eur.," p. 204; Fries, "Sys. Myco.," ii. p. 24; "Eng. Flo.," v. p. 185; Berk., "Outl.," p. 359; Cooke, "Handbk.," No. 1950; Gill., "Champ.," p. 21. *Phallus conicus*—"Flo. Dan.," t. 654; Timm, "Megap.," p. 263. *Leotia conica*—Pers., "Syn. Fung.," p. 613. *Helvella Relhani*—Sow., t. 11.

On the earth on heaths.

Stem 1 to 2 inches long, even, round, fistulose, slenderer than in *V. digitaliformis.* Pileus slightly fleshy, campanulate (Fries).

I have seen no specimen of this, but the characters are so marked that it must be retained.

Name—*Conus*, a cone; from the shape of the pileus.

Gogmagog Hills, Cambridgeshire (Relhan).

Doubtfully recorded.

Verpa speciosa—Vitt., "Mang.," p. 120, t. xv. figs. 5-8; "Grevillea," x. p. 51.

Berkeley and Broome record this doubtfully from Coed Coch, in "Ann. and Mag. Nat. Hist.," No. 1922, as follows:—"Agreeing in size and colour with Vittadini's figure; but the sporidia are not oblong, so that there is some doubt about the species."

GENUS V.—LEOTIA. Hill.

Receptacle pileate, supported in the centre, orbicular, spreading, revolute at the margin, clothed above and at the margin with the hymenium; hymenium confluent, undulated or even, persistent; asci fixed, clavate-cylin-

drical; sporidia 8, oblong, oblong-fusiform or filiform; paraphyses slender. (Plate II. fig. 5.)

Stem always present, distinct, wholly diffused into the receptacle. Pileus somewhat irregular, always free from the stem, convex, gradually depressed, tumid, viscous when bearing fruit, soft, margin repand. Substance fleshy, soft, somewhat tremellose.

Gregarious, terrestrial, medium sized, occurring in summer and autumn; without odour, and insipid; not edible (*vide* Fries, "Sys. Myco.," ii. p. 25).

Name—Supposed to be from λειότης, smoothness.

ARRANGEMENT OF THE SPECIES.

A.	Eu-Leotia	species 1–2
B.	Cudonia	„ 3–4

KEY TO THE SPECIES.

	Sporidia filiform	*circinans.*
	Sporidia fusiform	1
1.	Not exceeding 1 inch in height, stem filiform ..	*acicularis.*
	One to two inches in height, stem stout	2
2.	Pileus yellowish green	*lubrica.*
	Pileus dark æruginous green	*chlorocephala.*

A. EU-LEOTIA.

1. *Leotia lubrica.* Pers.

Gregarious, somewhat cæspitose, tremellose; pileus tumid, repand, yellow-olivaceous-green; stem at length hollow, nearly equal, yellow; asci nearly cylindrical; sporidia 8, narrowly elliptic, 25 × 8μ; paraphyses filiform.

Leotia lubrica—Pers., "Syn. Fung.," p. 613; Pers., "Myco. Eur.," t. ix.; Fries, "Sys. Myco.," ii. 29; Berk., "Outl.," t. 22, f. 1; Grev., "Sc. Crypt. Flo.," t. 56; Cooke, "Handbk.," No. 1964, fig. 327; "Mycogr.," fig. 171; Karst., "Myco. Fenn.," 26; Fckl., "Symb. Myco.," p. 284; Sacc., "Myco. Ven. Sp.," p. 162; Kickx., "Flo. Flan.," i. p. 500; Crouan, "Flo. Fin.," p. 59; Quelet, "Champ.," pt. i. p. 379.

Leotia gelatinosa—Hill., "Hist.," 43. *Elvela lubrica* —Scop., "Carn.," ii. 477. *Helvella lutea*—Berg., "Phyt.," i. t. 151. *H. gelatinosa*—Bull., "Champ.," p. 296, t. 470, f. 2; Sow., "Fung.," t. 70.

Exs.—Karst., "Fung. Fenn.," 461; Schm. and Kze., 224; "Erb. Crit. Ital.," i. 45; Cooke, "Fung. Brit.," i. 231; Moug. and Nest., 583; Rabh., "Fung. Eur.," 714; Rabh., "Herb. Myco.," 29; Fckl., "F. Rh.," 1138; Rav., vi. No. 77; Berk., "Brit. Fung.," 255; Rehm., "Asco.," 101; Winter, "Fungi Eur.," 2405 and 2509; Roumg., "Fung. Gal.," 712; Phil., "Elv. Brit.," 136.

On the ground in woods. Summer and autumn. Not edible.

Stem from 1 to 2 inches long, granular with minute squamules; at first pulpy within, then hollow.

Name—*Lubricus*, slimy.

Cambridgeshire (Relham). Balmuto, Scotland (Miss Boswell). Appin (Capt. Carmichael). Foxhall (Capt. Wauch). Anglesea (Rev. Hugh Davies). King's Cliffe, Penzance, Bungay, Aberystwith, Wicklow, Crundale (Rev. M. J. Berkeley). Near Bristol (Mr. C. E. Broome). Twycross (Rev. A. Bloxam). Little Malvern (Mr. Edwin Lees). North of Ireland (Templeton). Haw Wood, near Bristol (Mr. C. Bucknall). Shere (Dr. Capron). North Wootton, Castle Rising (Mr. C. B. Plowright). Epping Forest (Dr. M. C. Cooke). Wrekin, Salop! woods near Hereford!

2. *Leotia chlorocephala*. Schw.

Cæspitose; pileus globose, very glabrous, nearly pellucid, æruginous green; stem very long, twisted, powdered; asci clavato-cylindrical; sporidia 8, fusiform, curved, 3-guttulate, 20—22 × 5μ; paraphyses filiform.

Schw., "Syn.," p. 33; Fries, "Sys. Myco.," ii. p. 30; Berk. and Curt., "Grevillea," iii. p. 149; Cooke, "Mycogr.," fig. 174; B. and Br., "Ann. Nat. Hist.," No. 1985; "Grevillea," xi. p. 15.

Variable in size, reaching 4 inches in height; the

pileus and stem dark æruginous green. The Rev. M. J. Berkeley says the tint of green is so dark that it is nearly black.

On the ground. Not edible.

Name—χλωρός, green, κεφαλή, a head.

Hampshire (Miss Broadwood).

Form *Stevensoni.* Berk.

Short, densely cæspitose; pileus and stem green.

B. and Br., "Ann. Nat. Hist.," No. 1827. Steven., "Myco. Scot.," p. 297.

On damp ground in woods.

Name—After the Rev. John Stevenson.

Glamis, Hunter's Hill (Rev. J. Stevenson).

B. CUDONIA. Fries

3. *Leotia circinans.* Pers.

Gregarious, somewhat cæspitose, or arranged in circles; pileus fleshy, convex, afterwards undulate; margin involute, nerves underneath running down into the stem; stem fistulose, somewhat powdery; asci clavate; sporidia 8, linear, cylindrical, or clavate, straight or curved, multi-guttulate, 50—60 × 3μ; paraphyses filiform, curved at the apices. (Plate II. fig. 5.)

Leotia circinans—Pers., "Comm.," p. 31; "Icon. et Descr.," p. 16, t. 5, figs. 5–7; Fries, "Sys. Myco.," ii. p. 27; Steven., "Myco. Scot.," p. 297; Cooke, "Mycogr.," f. 172. *Cudonia circinans*—Fckl., "Symb. Myco.," 332; Karst., "Myco. Fenn.," p. 25. *Leotia gracilis*—Pers., "Myco. Eur.," i. 198. *Helot circinans*—Swartz, "Vet. Ac. Handl.," 1812, p. 15. *Helvella revoluta*—Wahl., "Ups.," p. 464. *Leotia lutea*—Peck (sub. *Vibrissea*) in "Reports New York Museum"; Cooke in "Bullet. Buff. S. N. Sc.," 1875. *Cudonia circinans*—Quelet, "Champ.," pt. ii. p. 380.,

Exs.—Karst., "Fung. Fenn.," 153; Rabh., "Fung. Eur.," 38, 312; Fckl., "F. Rh.," No 1139.

On the ground in fir woods. Autumn. Not edible.

Named from its habit of growing in circles. The pileus is of a soft fleshy consistence, somewhat rotund, at times much undulated, variable in colour with age and dryness, pallid-yellow, sometimes with a fleshy tinge; stem 1 to 2 inches high, ¼ of an inch thick, crooked, often sulcate, solid or fistulose, expanding upwards into the pileus.

Name—*Circino*, to make round; from growing in rings.

Forres, Scotland! (Rev. Dr. Keith). Aviemore, Scotland! (Mr. C. B. Plowright). Glamis, Crane's Hill, Scotland? (Rev. J. Stevenson). Menmuir, Scotland (Rev. M. J. Berkeley).

4. *Leotia acicularis.* Pers.

Gregarious or scattered, small, milk-white; pileus waxy, fragile, undulate-convex, margin straight, under side granulose; stem simple or branched, becoming crooked, discoloured; asci clavate; sporidia 8, fusiform, biguttulate, becoming pseudo-uniseptate, 25—28 × 4μ; paraphyses filiform.

Leotia acicularis—Pers., "Obs.," ii. p. 20, t. 5, fig. 1; t. 6, figs. 1, 2. *Fungus minimus*—Ray., "Syn.," p. 12; "Hist.," iii. p. 24. *Helvella acicularis*—Bull., "Champ.," p. 296, t. 473, f. 1. *Helvella agariciformis*—Bolt., "Fung.," t. 98, f. 1; Sow., "Fung.," t. 57. *Helotium aciculare*—Pers., "Syn. Fung.," 677; "Myco. Eur.," 343; Fries, "Sys. Myco.," ii. p. 156; A. and S., 349. *Peziza acicularis*—"Eng. Flo.," v. p. 208; Berk., "Outl.," 371; Cooke, "Handbk.," No. 2129; Steven., "Myco. Scot.," p. 328. *Cudonia Queletii*—Fries, "Icon. Select.," fas. vi.; Quelet, "Champ.," pt. i. p. 380; Gill., "Champ.," p. 23, c. i. *Leotia Queletii*—Cooke, "Mycogr.," fig. 369.

Exs.—Cooke, "Fung. Brit.," No. 400; Roumg., "Fung. Gal.," 1210.

On decayed stumps of trees, near the ground. Autumn.

Varying from ½ an inch to 1 inch or more high,

white, pallid, or rufescent; the pileus at first plane, with a slight depression in the centre, then convex, the margin sometimes undulating, but generally straight; the stem slender, bent, occasionally branched.

Name—*Acicula*, a small pin; from its form.

Near Halifax (Bolton). Pophills (Mrs. Rufford). Appin (Capt. Carmichael). Homstock Wood, King's Lynn! (Mr. C. B. Plowright). Attingham Park, Salop! Almond Park, Salop! Ercall Hill, Salop!

Doubtful Species.

Leotia nána—With. (dwarf *Leotia*). Small; pileus lobed, rugose, white, even beneath, and brown; stem stuffed, cylindrical, white.

Fries, "Sys. Myco.," ii. p. 28; With., iv. p. 296.

Amongst moss, on a shady bank.

Pendarvis, Cornwall (Mr. Stackhouse).

"Pileus snowy-white, leathery, hard, crumpled and deflected in various forms, smooth and brown underneath, about $\frac{3}{10}$ of an inch over; stem white, solid, smooth, not at all wrinkled, $\frac{1}{4}$ of an inch high, thick as a crow-quill" (With., *l. c.*).

This was included in Berkeley's "Outlines," but excluded from Cooke's "Handbook." It is placed here on the chance of some plant being discovered answering to the description.

GENUS VI.—MITRULA. Fries.

Receptacle globose or oval, even, immarginate, concrete with the stem; substance fleshy; asci cylindrical, or somewhat clavate; sporidia 8, fusiform, hyaline. (Plate II. fig. 6.)

Small slender plants, of which there are but six species (now that Dr. Cooke has created the genus *Leploglossum*), four of which are British, and are distinguished from *Leotia* by having no decided margin to the receptacle, from *Leptoglossum* by the broader and shorter capitulum, and from *Spathularia* by the capitulum not being compressed.

On decaying vegetable matter on the ground in damp places. Spring and autumn. Whether edible or not is unknown.

Name—Diminutive of *μίτρα*, a little mitre.

Three species 1-3

KEY TO THE SPECIES.

Totally white .. .. *alba.*
Stem paler than the pileus .. .. *paludosa.*
Stem as dark or darker than the pileus .. .. *cucullata.*

1. *Mitrula cucullata* (Batsch). Fries.

Head ovate or conical, even, nearly ferruginous; stem filiform, flexuous, brown, approaching black, glabrous, or tomentose downwards; asci cylindraceo-clavate; sporidia 8, narrowly fusiform, bi- or tri-guttulate, 12 × 3*μ*; paraphyses filiform.

Elvella cucullata—Batsch., "El.," f. 152. *Mitrula cucullata*—Fries, "Summa Veg. Scan.," 347; Berk., "Outl.," 360; Cooke, "Handbk.," 1951; Karst., "Myco. Fenn.," p. 28; Fckl., "Symb. Myco.," p. 332; Cooke, "Mycogr.," fig. 176; Quelet, "Champ.," pt. 1, p. 378; Gill., "Champ.," p. 27, c. i. *Mitrula (Heyderia) abietis*—Fries, "Sys. Myco.," i. p. 493. *M.? Heyderi*—Pers., "Disp.," 56, t. 3, f. 12; "Flo. Dan.," t. 1670, f. 2. *M. Pusilla*—Fries, "Sys. Myco.," i. p. 493. *Leotia mitrula*—Pers., "Syn. Fung.," 611; "Myco. Eur.," i. p. 199; A. and S., 295; Grev., "Flo. Edin.," p. 416; "Sc. Crypt. Flo.," t. 81. *L. pusilla*—Nees, "Sys.," p. 173, t. 17, f. 160. *Geoglossum cucullatum*—Fries, "Elench.," i. 233; "Eng. Flo.," v. 179. *Clavaria ferruginea*—Sow., t. 84.

Exs.—Desm., "Crypt. Fr.," i. 1155; "Erb. Crit. Ital.," i. 466; Rabh., "Fung. Eur.," 37, 669; Kze. and Schm., 98; Fckl., "F. Rh.," 1237; Wartm. and Sch., 431; Cooke, "Fung. Brit.," 233; Berk., "Brit. Fung.," 254; Phil., "Elv. Brit.," No. 53; Karst., "Fung. Fenn.," 447; Roumg., "Fung. Gal.," 713.

On decaying pine-leaves. Autumn.

A small plant, not more than 2 inches high, very slender, gregarious. The head varies in form, being ovate,

globose, subclavate, or conical, of a yellowish red or pale cinnamon colour, and fleshy texture; the stem is rather firm, darker in colour than the head, even, solid, and flexuous.

Name—*Cucullus*, a hood; from the shape of the pileus.

Balmuto, Scotland (Miss Boswell). Near Norwich (Sowerby). Bungay (D. Stock). Wiltshire (Mr. C. E. Broome). Castle Rising, Norfolk! (Mr. C. B. Plowright). Joydens Wood (Mr. F. Currey). Linlithgow; Hunslow, Middlesex (Rev. M. J. Berkeley). Wrekin, Salop! Penicuick, near Edinburgh!

2. *Mitrula paludosa*. Fries.

Head ovate, obtuse, inflated, even, yellow or orange yellow; stem rather slender, straight or flexous, hollow, paler than the head; asci subcylindrical; sporidia 8, nearly fusiform, 12—14 × 3·5μ; paraphyses filiform. (Plate II. fig. 6.)

Mitrula paludosa—Fries, "Sys. Myco.," i. 491; "Summa Veg. Scan.," 346; "Eng. Bot.," v. p. 180; Berk., "Outl.," p. 360; Cooke, "Handbk.," No. 1952; Huss., "Myco.," i. t. 9; Karst., "Myco. Fenn.," p. 28; Fckl., "Symb. Myco.," 332; Kickx., "Flo. Flan.," i. 501; Crouan, "Flo. Fin.," 58; Cooke, "Mycogr.," fig. 175; Quelet, "Champ.," pt. i. p. 378; Gill., "Champ.," p. 27, c. i.; Pat., p. 39, f. 97 (spor. bad). *Clavaria phalloides*—Bull., "Champ.," t. 465, f. 3. *C. epiphylla*—Dicks., "Crypt.," t. 3, f. 10. *Leotia Ludwigii*—Pers., "Syn. Fung.," t. 3, f. 13. *L. Dicksonii, L. Bulliardi, L. laricina*—Pers., "Syn. Fung.," 612. *L. uliginosa*—Grev., "Sc. Crypt. Flo.," t. 312; Pers., "Myco. Eur.," i. 200.

Exs.—Klotzsch, "H. M.," 238; Desm., "Crypt. Fr.," i. 606; Rabh., "Herb. Myco.," 132; Fckl., "F. Rh.," 1236; Berk., "Brit. Fung.," 278; Phil., "Elv. Brit.," 2; Karst., "Fung. Fenn.," 24; Winter, "Fungi Eur.," 2844; Rehm., "Asco.," 601; Ellis, "N. A. Fungi," 433.

On decaying leaves in wet places. Spring to autumn. Qualities unknown.

Gregarious, cæspitose, or solitary, soft, glabrous hollow, rather brittle, 1 to 3 inches in height; head very variable in form, globose, ovate, or broadly clavate; summit generally obtuse, bright orange yellow, filled when young with silky filaments, which disappear with age, leaving it hollow; stem white, varying from a yellowish to a pinkish tinge, enlarged upwards, even, and crooked.

Name—*Palus*, a marsh; found in marshes.

Kames Castle, Isle of Bute (Dr. Greville). Pitlochrie (Dr. Thomson). Penzance (Mr. Ralfs). Aboyne, New Pitsligo (Rev. M. J. Berkeley). Bournemouth; St. George's Hill, Weybridge (Mr. F. Currey). Keston Common; Horsham; Penicuick (Dr. M. C. Cooke). North of Ireland (Templeton). Baldovan Woods (Gardener). North Wootton, Norfolk (Dr. John Lowe). Trefrew, North Wales! Capel Curig, North Wales! Llyn Ogwin, North Wales!

3. *Mitrula alba*. Wor. Smith.

Head globose, even, white; stem stuffed, white; asci cylindrical; sporidia lanceolate, hyaline, eguttulate, 16 × 3μ.

Mitrula alba—W. G. Smith, "Grevillea," i. p. 136, t. 10, lower figure; Cooke, "Mycogr.," fig. 177.

Differs entirely from *M. paludosa*, Fries, in colour, and especially in the globose head and stuffed stem (W. G. Smith, *l. c.*).

Amongst submerged leaves. April, 1877.

Name—*Albus*, white.

East Budleigh, Budleigh Salterton (Mr. Cecil H. Sp. Perceval).

Excluded Species.

Mitrula minuta—Sow. (small orange *Mitrula*). Very minute; receptacle lanceolate, orange; stem equal, pallid.

Fries, "Sys. Myco.," i. p. 492. *Clavaria minuta*—Sow., t. 391.

On the bracteæ of *Dipsacus pilosus*.

Rayleigh, Essex (Rev. R. B. Francis).

I have not been able to find specimens in Mr. Sowerby's collection; possibly it may be a state of *Pistillaria micans* ("Eng. Flo.," v. p. 180).

Genus VII.—Spathularia. Pers.

Receptacle vertical, compressed laterally, running down two opposite sides of the distinct stem; substance fleshy-membranaceous; asci clavate; sporidia 8, filiform, hyaline; paraphyses filiform. (Plate II. fig. 7.)

The one British species of this genus is easily distinguished from plants of other allied genera by the hymenium running down two opposite sides of the stem, assuming a spoon-like outline owing to its being laterally compressed. Some species of *Leptoglossum* and *Geoglossum* are compressed, but the hymenium entirely *surrounds* the stem.

Name—Diminutive of σπάθη, a spatula.

1. *Spathularia flavida.* Pers.

Head spathulate, compressed, nearly even, yellow; margin crisped or undulated; stem white; asci clavate; sporidia 8, acicular-filiform, multi-guttulate, 60—70 × 6—7μ; paraphyses filiform, branched, numerous. (Plate II. fig. 7.)

Spathularia flavida—Pers., "Comm.," p. 34; Fries, "Sys. Myco.," i. 491; Grev., "Sc. Crypt. Flo.," t. 165; "Eng. Flo.," v. p. 179; Price, t. 5, f. 34; D. C., "Flo. Fr.," ii. 95; Berk., "Outl.," t. 21, f. 7; Cooke, "Handbk.," No. 1953, fig. 326; Kromb., t. v. f. 22; Karst., "Myco. Fenn.," 27; Cooke, "Mycogr.," fig. 342; Gill., "Champ.," p. 26, c. i. *Elvella clavata*—Schæff., t. 149. *Clavaria spathulata*—"Flo. Dan.," t. 658; Schmidt, "Icon.," t. 50. *Helvella spathularia*—Sow., "Fung.," t. 35. *H. feritoria*—Bolt., t. 97. *Spathularia flava*—Swartz, "Vet. Ac. Handl.," 1812, p. 10. *S. crispa*—Corda, "Icon.," ii. 36, f. 125. *S. flavida*—Fckl., "Symb. Myco.," p. 332.

Exs.—Rabh., "Herb. Myco.," 28; Desm., "Crypt. Fr.," ii. 455; Rabh., "Fung. Eur.," ii. 126; Wartm. and Schw.,

215; West and Wall., "H. B." 1085; Schm. and Kze., 194; Berk., "Brit. Fung.," 257; Fckl., "Fung. Rh.," 1143; Cooke, "Fung. Brit.," i. 470; Klotsch., "H. M.," 815; Rehm., "Asco.," 426; Phil., "Elv. Brit.," 3; Thum., "Fung. Aus.," 425; Roumg., "Stirpes," 326.

On dead fir-leaves and amongst moss in damp woods. July to October.

Gregarious, 3 to 5 inches high; pileus hollow, yellow, rarely reddish, much compressed, more or less of an erect obovate form, slightly inflated, undulated, or even lacunose, sometimes bifid, or inclining to be lobed. The stem appears to pass along and eventually penetrate the pileus half-way down or near the summit; sporidia discharged elastically (Grev.).

Name—*Flavus*, light yellowish.

Costessey, near Norwich (Sowerby). Round Edinburgh (Dr. Greville). Malvern (Mr. Edwin Lees). Laxton, Northamptonshire (Rev. M. J. Berkeley). Weybridge, East Bergholt (Mr. Frederick Currey). Wiltshire (Mr. C. E. Broome). Dinmore, Herefordshire! woods near Ludlow (Mrs. Price). Invergordon, Scotland (Miss Joss). Dinedor, Herefordshire (Dr. M. C. Cooke). Near Carlisle! (Dr. Carlyle). Castle Rising, Norfolk! (Mr. C. B. Plowright).

Genus VIII.—Leptoglossum. Cooke.

Receptacle clavate, cylindrical, or compressed, brightly coloured, produced downwards into a distinct stem; hymenium concrete with and covering the incrassated upper portion; asci cylindrical or clavate; sporidia 8, hyaline. (Plate II. fig. 8.)

Leptoglossum—Cooke in "Mycogr.," p. 250, revised in litt.

The plants of this genus are distinguished easily from those of *Geoglossum* (Cooke; non Fries), by the brighter colour (never black).

Name—λεπτός, fine, γλῶσσα, tongue; resembling a slender tongue.

KEY TO THE SPECIES.

Hymenium æruginous green	*viride.*
Hymenium smoky olive or dingy purple	*olivaceum.*

1. *Leptoglossum viride.* (Pers.)

Fasciculate, verdigris-green; receptacle distinct; stem squamulose; asci cylindraceo-clavate; sporidia 8, oblong-elliptic, hyaline, 15 × 5μ; paraphyses filiform, hardly enlarged upwards. (Plate II. fig. 8.)

Geoglossum viride—Pers., "Comm.," p. 40; Fries, "Sys. Myco.," i. 48; Weinm., "Hym.," p. 498; Grev., "Sc. Crypt. Flo.," t. 211; Sturm, "Flo.," t. 48; Nees, "Sys.," t. 17, p. 158; "Eng. Flo.," v. p. 179; Berk., "Outl.," p. 361; Cooke, "Handbk.," No. 1956; "Mycogr.," fig. 14; Kickx., "Flo. Flan.," i. 501; Secr., "Mycogr.," iii. 621; Fckl., "Symb. Myco.," 284; Quelet, "Champ.," p. 377; Pat., p. 29, f. 66. *Mitrula viridis*—Karst., "Myco. Fenn.," i. 29. *Clavaria mitrata viridis*—Holms., "Ot.," p. 24. *C. viridis*—"Flo. Dan.," t. 1258, f. 1. *C. Serpentina*—Mull., "Zool. Dan.," p. 256. *Leotia geoglossoides*—Corda, "Icon.," iii. p. 37, t. vi. f. 94. *Microglossum viridi*—Gill., "Champ.," p. 26, c. i.

Exs.—Fckl., "F. Rh.," 1140; Rehm., "Asco.," 151; Rabh., "Fung. Eur.," 524 and 1625; Desm., "Crypt. Fr.," i. 423; Karst., "Fung. Fenn.," 449; Cooke, "Fung. Brit.," ed. ii. 395; Phil., "Elv. Brit.," 54.

On the ground in woods, amongst moss and decaying leaves. Autumn. Qualities unknown.

From 1 to 3 inches high; about ¼ of an inch in broadest part. The club-shaped head is generally obtuse at the summit, and terminates abruptly and unevenly at the base, occupying about one-third to one-half the entire length of the plant, not unfrequently compressed, glabrous, and, when wet, slippery; the stem is cylindrical, squamulose, rather paler than the head; the flesh is also green; the asci are narrowly clavate; the sporidia elliptic-oblong; paraphyses abundant; gelatina hymenia greenish. The sporidia in my Herefordshire specimens did not exceed the size given above, but Dr. Cooke ("Mycogr.") gives 30 × 10μ.

Name—*Viridis*, green.

Near Melrose (Mr. Walter Arnott). Appin (Capt. Carmichael). Coed Coch; Holm Lacy; Bristol; Aberystwith; Kilmory, Fern, N.B. (Rev. M. J. Berkeley). Corby Castle, Cumberland, and about Carlisle (Dr. Carlyle). Tyntesfield, near Bristol (Mr. C. Bucknall). Dinmore, Hereford! Moccas Woods, near Hereford! (Mr. C. B. Plowright).

2. *Leptoglossum olivaceum.* (Pers.)

Glabrous, dry, smoky olive; stem glabrous, yellowish brown, base slightly incrassated, whitish; club compressed, distinct, as long or longer than the stem, in growing old greenish black, white within; asci cylindraceo-clavate; sporidia 8, oblong-elliptic, hyaline, continuous, 25 × 8μ; paraphyses filiform.

Geoglossum olivaceum—Pers., "Obs. Myco.," i. p. 40, t. 5, fig. 7; Fries, "Sys. Myco.," i. p. 419; Weinm., "Hym.," 498; Berk., "Outl.," t. 22, f. 3; Cooke, "Handbk.," No. 1957; "Mycogr.," fig. 13; Pat., p. 29, f. 65; Price, t. 16, f. 102. *Microglossum olivaceum*—Gill., "Champ.," p. 26, c. i.

Exs.—Cooke, "Fung. Brit.," i. 650, and ed. ii. 396; Phil., "Elv. Brit.," 5; Rabh., "Fung. Eur.," 1820.

On the ground in open grassy places. Autumn.

Gregarious or cæspitose, from 1½ to 2 inches high. The club, though distinct from the stem, passes gradually into it without any marked depression; it is compressed, sometimes sulcate, and twisted, very variable in outline, about ¼ of an inch thick. The stem is cylindrical, usually paler than the club, one-third to three-quarters of the entire height, ⅛ of an inch thick.

Name—*Oliva*, an olive; from the olivaceous colour.

β. *purpureum*—Berk. in "Outl.," t. 22, f. 2, differs only in colour, which is dingy purple; but, as the colour of the type is very variable—brown, olive, or purple—it is better to take no account of these differences, further than calling attention to the fact.

Name—*Purpureus*, purple-coloured.

Coed Coch, Aberystwith, North Wales; Fern, N.B. (Rev. M. J. Berkeley). Pastures near Ludlow! Moccas Park, Herefordshire! Bristol (Mr. C. E. Broome). Holm Lacy, Herefordshire (Dr. M. C. Cooke).

Genus IX.—Geoglossum. Pers.

Receptacle clavate, cyclindrical or compressed, black, produced downwards into a distinct stem; hymenium concrete with and covering the incrassated upper portion; asci cyclindrical or clavate; sporidia 8, coloured or hyaline. (Plate II. fig. 9.)

Name—$\gamma\tilde{\eta}$, the earth, $\gamma\lambda\tilde{\omega}\sigma\sigma\alpha$, a tongue; earth-tongue.

Arrangement of the Species.

A.	Sporidia brown	species 1–5
B.	Sporidia hyaline	„ 6–7

Key to the Species.

	Hymenium hairy	*hirsutum.*
	Hymenium glabrous	1
1.	Sporidia brown, 7-septate	2
	Sporidia brown, 3-septate	3
	Sporidia hyaline	4
2.	Paraphyses linear	*difforme.*
	Paraphyses moniliform	*glabrum.*
3.	Paraphyses pyriform	*glutinosum.*
	Paraphyses globose	*viscosum.*
4.	Flesh tremellose	*tremellosum.*
	Flesh not tremellose	*microsporum.*

A. SPORIDIA BROWN.

1. *Geoglossum hirsutum.* Pers.

Hirsute, black; club often elongated, compressed, or nearly round, capitate, plicate; asci cylindraceo-clavate; sporidia 8, fasciculate, linear, slightly curved, 15-septate, brown, 150 × 6μ; paraphyses septate, slightly enlarged at the curved or circinate apices. (Plate II. fig. 9.)

Geoglossum hirsutum—Pers., "Comm.," p. 37; "Syn. Fung.," p. 608; Fries, "Sys. Myco.," i. 488; Weinm., "Hym.," 496; Nees, "Sys.," t. 17, f. 157; Purt., "Midl. Flo.," vols. ii. and iii. No. 1059; Grev., "Sc. Crypt. Flo.,"

t. 185; "Eng. Flo.," v. 178; Berk., "Outl.," t. 22, f. 12; Loudon, f. 16184; Cooke's "Handbk.," No. 1861; "Mycogr.," fig. 3; Karst., "Myco. Fenn.," i. 31; Fckl., "Symb. Myco.," 333; Gill., "Champ.," p. 24, c. i.; Pat., p. 29, f. 68. *Clavaria simplex hirsuta*—Schmidt, "Icon.," t. 25, f. 1–19. *C. ophioglossoides*—Holms., "Ot.," p. 18; Sow., "Fung.," t. 13; Schæff., "Icon.," t. 327. *C. atra*—Schrad. in Pers., "Comm.," p. 37; Humb., "Flo. Frib.," p. 114.

Exs.—Karst., "Fung. Fenn.," 451; Fckl., "F. Rh.," 1141; West and Wall., "H. B.," 1084; "Erb. Crit. Ital.," i. 975; Desm., "Crypt. Fr.," i. 420; Rabh., "Fung. Eur.," ii. 523; Rabh., "Herb. Myco.," 237; Schm. and Kze., 122; Klotzsch, "H. M.," 44; Roumg., "Stirpes.," 63; Cooke, "Fung. Brit.," ed. ii. 393

Cæspitose, 2 to 3 inches high; club oblong or ovate, generally compressed, distinct from, but passing gradually into, the stem, often ½ an inch broad, black, hairy; stem cylindrical, $\frac{1}{16}$ to $\frac{3}{16}$ of an inch thick, covered with short black hairs. The sporidia are elongated, nearly cylindrical, obtuse at the ends, brown, septate. The paraphyses are septate, curved at the apices, which are obtuse, brown, and thicker than the lower portion. Rigid black hairs tapering upwards are intermixed with the paraphyses.

Name—*Hirsutus*, hairy.

Bryndulas, Cwm Bychan, Penzance, Thornhaugh, Notts, Reigate, and Brighton (Rev. M. J. Berkeley). Twycross (Rev. A. Bloxam). Abergavenny (Dr. M. C. Cooke). Foxhall (Herb. Kew). North Wootton; Rackheath; Little Plumstead; and Woodbastwick, Norfolk! (Mr. C. B. Plowright). Around Carlisle (Dr. Carlyle). Lawns near Hereford! General Cemetery, Shrewsbury! pastures about Ludlow!

2. *Geoglossum difforme.* Fries.

Gregarious, glabrous, even, slightly viscid, black; club difformed, compressed, obtuse, distinct; asci cylindraceo-clavate; sporidia 8, linear, straight, or slightly

curved, 7-septate, brown, 110 × 7μ; paraphyses filiform, septate, flexuous above.

Geoglossum difforme—Fries, "Obs. Myco.," i. 159; "Sys. Myco.," i. 489; "Eng. Flo.," v. p. 178; Kromb., t. 54, f. 28, 29; Berk., "Outl.," 362; Cooke, "Handbk.," No. 1962; "Mycogr.," fig. 7; Karst., "Myco. Fenn.," i. 31; Price, t. 18, f. 117; Gill., "Champ.," p. 25, c. i.

Exs.—Berk., "Brit. Fung.," 256; Cooke, "Fung. Brit.," 481, ed. ii. 394.

On the ground in grassy places. Autumn.

Cæspitose, 1 to 4 inches high; club difformed, bent, irregular, somewhat viscid, especially when moist, without hairs, black; stem one-half to three-quarters of the entire height of the plant, cylindrical, even; the brown, elongated, nearly cylindrical sporidia adhere in bundles; the septate paraphyses are not enlarged at the apices, nor very deeply coloured.

Distinguished from *G. Glabrum* by its longer sporidia, and the apices of the sporidia not being moniliform; from *G. glutinosum* by its longer sporidia, and paraphyses not being pyriform at the apices; and from *G. viscosum* by the more numerous septa of the sporidia and the apices of the paraphyses.

Name—*Dis* and *forma*, of irregular shape, deformed.

Boughton House, Northamptonshire; Bristol; Woodnewton; Lampeter; Bungay; and Bryndulas (Rev. M. J. Berkeley). Fern (Rev. J. Furguson). North Wootton, Ringstead Downs! (Mr. C. B. Plowright). Crosshill, near Carlisle (Dr. Carlyle). Wrekin, Salop! lawns near Hereford!

3. *Geoglossum glabrum.* Pers.

Subgregarious, glabrous, dry, blackish; stem somewhat squamulose; asci cylindraceo-clavate; sporidia 8, linear, straight, or slightly curved, 7-septate, brown, 85—90μ long; paraphyses linear, thickened at the apices, the four upper cells oval, concatenate.

Geoglossum glabrum—Pers., "Obs. Myco.," ii. p. 61; Fries, "Sys. Myco.," i. 488; Weinm., "Hym.," 497;

"Eng. Flo.," v. p. 178; Krombh., t. 5, f. 20, 21; Fckl., "Symb. Myco.," 333; Berk., "Outl.," 362; Price, t. 3, f. 17; Cooke, "Handbk.," No. 1960; Kickx., "Flo. Flan.," i. 501; Secr., "Mycogr.," iii. 621; Gill., "Champ.," p. 25, c. i.; Pat., p. 29, f. 67. *Clavaria ophioglossoides*—Bull., "Champ.," t. 372; Bolt., "Fung.," t. 211, f. 1; "Flo. Dan.," t. 1076, f. 2; Cooke, "Mycogr.," fig. 1.

Exs.—Fckl., "F. Rh.," 1142; Schm. and Kze., 97; Moug. and Nest., 684; Phil., "Elv. Brit.," 55; Roumg., "Stirpes," 262; Ellis, "N. A. Fungi," 980.

On the ground in grassy places. Autumn.

Gregarious, 1 to 3 inches high; club lanceolate, passing gradually into the even stem, blackish; stem rather slender, crooked, cylindrical, half to two-thirds the entire height of the plant, rather squamulose; sporidia cylindrical, rounded at the ends, brown, usually 7-septate, adhering together in a bundle; paraphyses remarkable from the four or five upper cells being larger, constricted at the joints, almost beaded, and brown.

Name—*Glaber*, smooth.

Near Halifax (Bolton). Scotland (Klotzsch in "Hook. Herb."). Near Bungay (Mr. Stock). Malvern (Mr. Edwin Lees). North of Ireland (Templeton). Woodnewton, Northamptonshire; Coed Coch; Crundale; Ascot; Holm Lacy; and Memmuir (Rev. M. J. Berkeley). Twycross (Rev. A Bloxham). Paul's Cray Common (Mr. F. Currey). Castle Rising! (Mr. C. B. Plowright). Abergavenny! (Mr. J. Renney). Whitcliffe, near Ludlow! Wrekin, Salop!

4. *Geoglossum viscosum.* Pers.

Glabrous, viscid, black; club cylindrical, confluent with the stem, afterwards slightly thickened, olivaceous-black below; asci cylindraceo-clavate; sporidia 8, linear, rounded at the ends, straight, or slightly curved, 3-septate, brown; 80 × 95μ; paraphyses filiform, non-septate, globose apices.

Geoglossum viscosum—Pers., "Comm.," p. 59; Fries, "Sys. Myco.," i. 439; "Epic.," i. p. 583; Grev., "Sc. Crypt.

Flo.," t. 55; Cooke, "Handbk.," No. 1959; Fckl., "Symb. Myco.," 333; Cooke, "Mycogr.," fig. 10; Gill., "Champ.," p. 25, c. i.

On the ground, mountain pastures, etc. Autumn.

Subgregarious, 2 to 3 inches high; club broadly fusiform, obtuse at the apex, passing imperceptibly into the stem, black, rarely forming more than one-fourth of the entire height of the plant; stem rather slender (about $\frac{1}{8}$ of an inch), glabrous, cylindrical, slimy, especially in moist weather, paler towards the base, where it is brownish. The globose apices of the paraphyses is a character which at once distinguishes this species from *G. glutinosum* and *G. difforme*.

Name—*Viscum*, bird-lime, coated with a tenacious liquid, sticky.

Foxhall (Capt. Wauch). Terrington, Norfolk! (Mr C. B. Plowright).

5. *Geoglossum glutinosum*. Pers.

Glabrous, black; club compressed, distinct, nearly lanceolate, obsoletely viscid, black; stem viscid, bay-black; asci cylindraceo-clavate, sessile; sporidia 8, linear, straight, or curved, 3-septate, brown; 80μ long; paraphyses filiform, non-septate, apices subpyriform, brown.

Geoglossum glutinosum—Pers., "Obs.," i. p. 11; Fries, "Sys. Myco.," i. 489; "Eng. Flo.," v. p. 178; Karst., "Myco. Fenn.," i. 30; Weinm., "Hym.," 497; Berk., "Outl.," 362; Cooke, "Handbk.," No. 1958; "Mycogr.," fig. 6; Kickx., "Flo. Flan.," i. 501; Gill., "Champ.," p. 25, c. i.

Exs.—Klotzsch, "Exs.," 641; Desm., "Crypt. Fr.," i. 422; Karst., "Fung. Fenn.," No. 450.

On the ground in grassy places. Autumn.

Gregarious, 1 to 2 inches high; club oblong-lanceolate, obtuse at the summit, viscid, compressed, black, occupying rather more than one-third of the entire height of the plant, passing imperceptibly into the viscid, slender, cylindrical stem, which is brownish black. The sporidia adhere in a bundle, are generally 3-septate, brown;

apices of paraphyses nearly pear-shape, brown, and not septate.

Name—*Gluten*, glue = glutinous.

Bristol, Coed Coch (Rev. M. J. Berkeley). Hanham Woods, near Bristol (Mr. C. E. Broome). Mousehold Heath and South Wootton Heath, Norfolk! (Mr. C. B. Plowright). Hanham (Mr. Cedric Bucknall).

B. SPORIDIA HYALINE.

6. *Geoglossum microsporum.* Cooke and Peck.

Glabrous, somewhat viscid; club obtuse, distinct; stem slightly squamulose; asci cylindrical; sporidia 8, 2-seriate, crowded, cylindrical, a little curved, hyaline, faintly 7-septate, 50 × 10μ; paraphyses filiform, straight, not enlarged at the apices.

Geoglossum microsporum—Cooke and Peck, "Twenty-fifth Report New York Mus. Nat. Hist."; Cooke, "Mycogr.," fig. 11.

On the ground. Autumn.

Name—$\mu\iota\kappa\rho\acute{o}\varsigma$, small, $\sigma\pi\acute{o}\rho o\varsigma$, seed; from the small sporidia.

Hanham, Clifton! (Mr. C. Bucknall).

7. *Geoglossum tremellosum.* Cooke.

Glabrous, tremellose, black, contiguous; club subcompressed, hollow; stem even, glutinous, the same colour; asci clavate; sporidia fusiform, straight or curved, hyaline, 30—32 × 5μ, at length 5 to 7-septate; paraphyses linear.

Geoglossum tremellosum—Cooke, "Mycogr.," fig. 347. *Geoglossum microsporum*, var., *tremellosum*—Cooke in "Grevillea," iv. p. 109.

On the ground.

Name—*Tremulus*, trembling; from shaking when agitated.

Rannock, N.B. (Dr. Buchanan White).

Genus X.—Rhizina. Fries.

Sessile, effused like a crust, afterwards bullato-inflated, determinate, hymenium occupying the upper surface; under side furnished with root-like fibrils; flesh firm, persistent; asci cylindrical; sporidia 8, large. (Plate II. fig. 10.)

On the earth or on wood.

Large (from 1 to 3 inches), persistent.

Name—ῥίζα, a root; from the root-like fibrils which clothe more or less of the under surface, attaching it to the ground.

1. *Rhizina undulata.* Fries.

Effused, undulate, bay-brown; margin inflexed, flocculose beneath, and pallid; asci cylindrical; sporidia 8, fusiform, sub-acute, 2-guttulate, at length pseudo-septate, 30—35 × 9μ; paraphyses filiform, enlarged and brown at the apices, which adhere firmly together. (Plate II. fig. 10.)

Rhizina undulata—Fries, "Sys. Myco.," ii. p. 33; Schæff., t. 153; Pers., "Myco. Eur.," p. 216; Tul., "Hyp.," t. 21, f. 16; Cfrr., "Linn. Trans.," xxiv. p. 493, t. 51, f. 7–9; Fckl., "Symb. Myco.," p. 332; Cooke, "Handbk.," No. 1963; Gill., "Champ.," p. 28, c. i.; Pat., p. 209, f. 479.

Exs.—Rabh., "Fung. Eur.," Nos. 39 and 725; Phil., "Elv. Brit.," No. 56; Cooke, "Fung. Brit.," ser. ii. No. 400; Winter, "Fungi Eur.," 2750; Rehm., "Asco.," 701.

On gravelly and sandy soil that has recently been exposed to fire.

Varying in size from ½ an inch to 3 inches broad. At first orbicular, plane, with a whitish margin; when mature convex, undulate, and irregular in outline. The rhizinæ are coarse fibres occupying the greater part of the under surface, but absent for a certain distance from the margin, which is tomentose and rufous; when dry the hymenium becomes black and hard. The fusiform sporidia have a thick epispore, especially at the extremities, and are faintly coloured. The paraphyses

adhere by their summits being apparently held together by a brownish "gelatina hymenia," and at intervals occur some which are brown throughout their whole length, and non-septate. These deserve more careful examination in the fresh state, as their function may be to convey from the subhymenial tissue the brown "gelatina hymenia" alluded to above.

Name—*Undulatus*, waved.

Ascot Heath (Mr. Frederick Currey). Wrekin, Shropshire!

2. *Rhizina lævigata.* Fries.

Orbicular, even, brown; margin prominent, granulose beneath; fibrils pallid; asci cylindrical; sporidia 8, fusiform, acuminate, bi-guttulate, uni-seriate, hyaline; paraphyses filiform.

Rhizina lævigata—Fries, "Sys. Myco.," ii. p. 33; Pers., "Myco. Eur.," p. 217; Cooke, "Grevillea," ii. p. 162, t. 22, fig. 1. *Octospora rhizophora*—Hedw., "Mus. Frond.," ii. t. 5, f. A.

Exs.—Winter, "Fungi Eur.," 2406; Dr. Cooke, "On Stumps"; Fries, "Ad terram araneosam."

Scarcely exceeding 1 inch in breadth. The only British specimen I have seen is from Glamis, N.B., which has sporidia in no way differing from *R. undulata.*

Name—*Lævis*, even; from the even hymenium.

Order II.—PEZIZÆ.

Receptacle concave, plane, or convex, sessile or stipitate, fleshy or waxy; hymenium on the upper surface; asci fixed, cylindrical, or clavate; sporidia usually 8.

Receptacle adfixed by the centre, rarely by the whole under surface, or supported on a stem, more or less concave, often becoming plane or even convex; substance fleshy or waxy, not gelatinous or cartilaginous; asci *not* ejected; sporidia hyaline.

Differs from *Helvellacei* by the concave or plane

receptacle; from *Ascobolæ* by the fixed asci; from *Bulgariæ* by not being gelatinous or subcartilaginous; from *Dermateæ* by the softer texture; and from *Patellariæ* by colour, texture, and form.

Name—*Pezica* (from πέζα, the foot, bottom, base, that which rests on its base, sessile), a word used by Pliny to denote various kinds of puff-balls (*vide* Houghton, "Ann. and Mag. Nat. Hist.," 1885). The name has now acquired a widely different meaning.

ORDER OF THE GENERA IN PEZIZÆ.

SERIES I.—NUDÆ.	SERIES II.—VESTITÆ.
Not clothed with hairs.	Clothed with hairs.
I. *Peziza.*	VIII. *Lachnea.*
II. *Psilopezia.*	IX. *Lachnella.*
III. *Hymenoscypha.*	X. *Tapesia.*
IV. *Chlorosplenium.*	XI. *Desmazierella.*
V. *Belonidium.*	XII. *Pirottæa.*
VI. *Helotium.*	
VII. *Mollisia.*	

KEY TO THE GENERA OF PEZIZÆ.

	Applanate, immarginate, affixed by the centre ..	*Psilopezia.*
	More or less cup-shaped	1
1.	Exterior not hairy (though sometimes tomentose)	2
	Exterior hairy, villous, or tomentose	4
2.	Fleshy, for the most part large; sporidia large ..	*Peziza.*
	Fleshy, or rarely waxy, sessile; sporidia minute ..	*Mollisia.*
	Waxy, or between waxy and fleshy..	3
3.	Stem distinct and slender, not green	*Hymenoscypha.*
	Stem distinct and slender, green	*Chlrosplenium.*
	Stem absent, or short and thick; sporidia simple, or rarely 1-septate	*Helotium.*
	Stem absent or short, sporidia 3 or more septate ..	*Belonidium.*
4.	Seated on a distinct tapesium	*Tapesia.*
	Pilose fleshy, mostly large or medium size ..	*Lachnea.*
	Villous or tomentose, mostly small, not black ..	*Lachnella.*
	Setulose, blackish	5
5.	Hymenium, as well as exterior, setulose	*Desmazierella.*
	Hymenium not setulose	*Pirottæa.*

SERIES I.—NUDÆ.

Fleshy or fleshy-membranaceous, externally glabrous, pruinose, or floccoso-furfuraceus.

Genus I.—Peziza. Dill ("Gen.," p. 74).

Receptacle marginate, cup-shaped, at first closed, afterwards expanding; epidermis thin, contiguous, glabrous, pruinose, or floccoso-furfuraceus, persistent, distinct; asci large, distinct, fixed, enclosing 8 sporidia, which are soon elastically ejected; paraphyses filiform, intermixed with the asci. Cups adfixed by the centre, often stipitate, freely unfolding, more or less concave, often becoming plane; hymenium smooth (not villous or pulveraceous), differing in colour; substance fleshy-membranaceous, not waxy or gelatinous. (Plate V. figs. 11–22).

Name—See p. 42.

Arrangement of Subgenera.

I.	*Acetabula*	species 1–3
II.	*Tarzetta*	„ 4–10
III.	*Otidea*	„ 11–16
IV.	*Cochlearia*	„ 17–29
V.	*Discina*	„ 30–35
VI.	*Galactinia*	„ 36–37
VII.	*Pustularia*	„ 38–43
VIII.	*Geoscypha*	„ 44–57
IX.	*Humaria*	„ 58–97
X.	*Pyronema*	„ 98–104

Key to the Subgenera.

	Stipitate	1
	Sessile or substipitate	2
1.	Stem stout	*Acetabula.*
	Stem slender	*Tarzetta.*
2.	Yielding a coloured fluid when wounded	*Galactinia.*
	Yielding a colourless fluid when wounded	3
3.	Cups elongated on one side	*Otidea.*
	Cups not elongated on one side	4
4.	Cups large	5
	Cups small, rarely exceeding 5 lines broad	7
5.	Turfuraceous or verrucose, entire	*Pustularia.*
	Pruinose or farinose	6
6.	Flexuous, cæspitose-contorted, sessile	*Cochlearia.*
	Plane or repand, sessile or substipitate	*Discina.*
	Smaller, entire or lobed, sessile	*Geoscypha.*
7.	Base surrounded by a delicate white web	*Pyronema.*
	Base without a white web round it	*Humaria.*

Subgenus I.—Acetabula. Fckl.

Cup entire, naked; stem stout, distinct, often sulcate.

Key to the Species.

Stem sulcate, equal, or broader below	*acetabulum.*
Stem not sulcate, attenuated below	*insolita.*
Stem sub-attenuated below, with slender rooting fibrils	*Percevali.*

1. *Peziza acetabulum.* Linn.

Cyathiform, dingy, ribbed externally with branching veins, which run up from the short, lacunose, fistulose stem; asci cylindrical; sporidia 8, elliptic, 18—20 × 12μ; paraphyses incrassated upwards. (Plate III. fig. 11.)

Peziza acetabulum—Linn., "Spec. Plant.," ii. 1650; Bull., "Champ.," p. 267, t. 485, f. 4; Fries, "Sys. Myco.," ii. 44; Sow., "Fung.," t. 59; "Eng. Flo.," v. p. 187; Berk., "Outl.," 362; Price, fig. 72; Cooke, "Handbk.," No. 1964; "Mycogr.," fig. 183; Vitt., "Mang.," t. 30, fig. 2; Kromb., "Schw.," t. 61, f. 23-26; Pat., p. 70, f. 162. *Fungoides acetabuliforme*—Vaill., "Bot.," t. 13, f. 1. *Acetabula vulgaris*—Fckl., "Symb. Myco.," p. 330; Sacc., "Myco. Ven. Sp.," p. 168. *Aleurea acetabulum*—Gill., "Champ.," p. 36, c. i.

Exs.—Fckl., "F. Rh.," 1231, 2084; Cooke, "Fung. Brit.," i. 556, ii. 182; Rabh., "Fung. Eur.," 316; Phil., "Elv. Brit.," 6; Rav., "Fung. Am.," 764; Roumg., "Fung. Gal.," 2275.

On the ground in spring. Esculent.

Cup 2 inches broad, 1½ inches high, externally floccoso-furfuraceus, light umber, darker within, mouth contracted, firm, tough, flesh not very thick; stem ½ an inch high, smooth, deeply, but regularly costato-lacunose; the ribs branching at the top and forming reticulations on the outside of the cup, so as to present the appearance of a cluster of pillars supporting a font or roof, with fret-work between them ("Eng. Flo.").

External cells of the cup concatenate, with their free extremities breaking up, so as to give a farinose appearance to the surface (Dr. Cooke, *l. c.*).

Name—*Acetabulum*, vinegar cup; shaped like a cup.

Sand Hutton, Yorkshire (Rev. M. Budstone). King's Cliffe, Northamptonshire; Kingerswell, Devonshire (Rev. M. J. Berkeley). Pitlochrie and Cluny, N.B. (D. Thomson). Wiltshire (Mr. C. E. Broome). Hitchin (Professor Henslow). White Notley (Mr. A. Irvine). Ashton Court, Bristol (Mr. C. Bucknall). Framingham Earl; Sprowston; Castle Rising, Norfolk! (Mr. C. B. Plowright). General Cemetery, Shrewsbury! near Ludlow (Miss Price).

2. *Peziza insolita.* Cooke.

Stipitate, fleshy, fragile, whitish, clavate, then pyriform, becoming cyathiform; stem thick, attenuated below; hymenium ochery-white; asci cylindrical; sporidia 8, elliptic, hyaline, 22—25 × 10—12μ; paraphyses filiform, short, septate.

Peziza insolita—Cooke, "Mycogr.," fig. 375.

On decayed leaves amongst mould in a fig-house. December.

Cup 1 inch high, $\frac{1}{2}$ an inch or more in diameter; cells of cups 12 × 10μ; the paraphyses shorter than the asci. A white mycelium runs amongst the leaves on which it grows (Cooke).

Name—*Insolita*, unusual.

Castle Gardens, N.B. (Rev. J. Stevenson). Kelvedon, Essex (Dr. M. C. Cooke).

3. *Peziza Percevali.* Berk. and Cooke.

Solitary; cup at length expanded, somewhat pruinose. the margin closely inflexed; stem somewhat thick, subattenuated below, with slender rooting fibrils; asci clavato-cylindrical; sporidia elliptic (?); paraphyses thickened above, brownish.

Peziza Percevali.—Berk. and Cooke, "Mycogr.," fig. 192. *Peziza ciborium*—Fries, "Sys. Myco.," n. 59 (partly), var. *major*; B. and Br. in "Ann. Nat. Hist.," No. 1479; "Grevillea," iii. p. 119.

On the ground.

Cup 1½ inches broad; stem 1 to 1½ inches long, ¼ inch and more thick, terminated by a few rooting fibrils; sporidia immature, according to Berkeley, 25 × 12μ, apparently elliptical, larger than in *P. ciborium*; the asci are considerably larger, and of a different character (Cooke).

On the ground (Mr. H. C. Spencer Perceval in Herb. Berk.). On a lawn under lime-trees, Glamis Castle (Rev. J. Stevenson).

Subgenus II.—Tarzetta. Cooke.

Cup nearly entire, naked, stipitate; stem slender, varying in length, erect or rooting. (Plate III. fig. 12.)

Name—(?) *Tazzetta* (Ital.), a little cup.

Arrangement of the Species.

A.	Stem erect.	
	(*a*) Sporidia elliptic, rough	species 4
	(*b*) Sporidia elliptic, smooth	„ 5-7
B.	Stem rooting.	
	(*a*) Sporidia elliptic, smooth	„ 8–10

Key to the Species.

	Stem erect	1
	Stem rooting	3
1.	Margin lobed; sporidia rough	*petaloidea.*
1.	Margin entire; sporidia smooth	*muralis.*
	Margin crenulate	2
2.	Fawn colour, farinose	*cupularis.*
2.	Flesh colour, glabrous	*carnea.*
3.	Cup turbinate; flesh thick, very fragile	*ammophila.*
3.	Cup becoming plane or deflexed; flesh thin, fragile	*rapulum.*
3.	Cup always concave, flesh thin, fragile; stem shorter than two preceding	*carbonaria.*

A. STEM ERECT.

(*a*) *Sporidia elliptic, rough.*

4. *Peziza petaloidea* (nov. sp.). Cooke and Phil.

Cup expanded, lobate, fleshy, firm; hymenium rugose, sub-umbilicate, yellowish brown, margin deflexed; stem rather slender, enlarged upwards into the rugose base of the cup; externally verrucose, fuliginous brown; asci

cyclindrical; sporidia 8, elliptic, minutely asperate, 15 × 8μ; paraphyses filiform.

On the earth. Spring.

This has somewhat the aspect of *Peziza firma* in an old stage of growth. The cup is lobed, undulate, decurved at the margin; the disc is umbilicate, radiately wrinkled, 8 lines broad across the widest part; the under side of the cup is smoky brown, minutely warted, wrinkled longitudinally near its junction with the stem, which tapers towards the base, and is 5 lines high and about 1 line thick near the middle.

Name—πέτᾰλον, a petal, εἶδος, likeness; from the lobed margin.

East Bergholt, Suffolk! in the herbarium of the Rev. M. J. Berkeley, February 2, 1852.

(*b*) *Sporidia elliptic, smooth.*

5. *Peziza cupularis.* Linn.

Cup globose-campanulate, thin; hymenium fawn-coloured or pallid, externally farinose; margin crenate; stem slender, erect, sometimes rooting or nearly obsolete; asci cylindrical; sporidia 8, elliptic, 1- to 2-guttulate, smooth, 18 × 10μ; paraphyses filiform, clavate apices. (Plate III. fig. 12.)

Peziza cupularis—Linn., "Suec.," No. 1273; Fries, "Sys. Myco.," ii. 64; Pers., "Obs.," ii. t. 4, f. 6, 7; Vaill., "Bot.," t. ii. f. 173; Karst., "Myco. Fenn.," p. 42; Weinm., "Hym.," p. 423; "Eng. Flo.," v. p. 189; Berk., "Outl.," 365, t. i. f. 2; Price, f. 79; Cooke, "Handbk.," 1990; "Mycogr.," t. 286; Pat., p. 71, f. 165 (?). *Aleuria cupularis*—Gill., "Champ.," p. 39, c. i. *Peziza crenata*—Bull., t. 396, f. 3. *Peziza vulcanalis*—Peck. in Haydn's "Geol. Report," 1872. *Pustularia cupularis*—Fckl., "Symb. Myco.," p. 328.

Exs.—Rehm., "Asco.," 8; Fckl., "F. Rh.," 1878; Phil., "Elv. Brit.," 155.

On the earth in damp places. Spring and autumn.

Sometimes yellowish; stem ¼ of an inch high, ⅛ of

an inch thick, sometimes obsolete; pileus pale buff, thin, transparent, scalloped at the edge, shaped like the cup of an acorn, about 1 inch in diameter (Withering).

Name—*Cupula*, a little cup.

Shrubbery, in mossy turf, Edgbaston (Withering); Apethorpe, Milton (Rev. M. J. Berkeley). Caistor (Henderson). Bowood, Wiltshire (Mr. Currey). Salhouse, Norfolk (Dr. M. C. Cooke). Taverham, Norfolk (Mr. C. B. Plowright). Brockley Comb, near Bristol (Mr. C. Bucknall). Wrekin! Kingsland, Shrewsbury! Hereford!

6. *Peziza carnea* (nov. sp.). Cooke and Phil.

Cup cyathiform, rather thin, firm, glabrous, flesh-coloured, margin crenate, erect; stem rather long, slender, expanding into the decurrently wrinkled base of the cup; asci cylindrical; sporidia 8, elliptic, smooth, 13 × 6μ; paraphyses filiform, curved at the summit.

Peziza cupularis—L. var. in Herb. Berk., Milton.

Cup from 5 to 10 lines broad; stem from 3 to 6 lines high, and about 1 line thick.

Name—*Caro*, flesh; flesh-coloured.

7. *Peziza muralis.* Sow.

Cup at first cyathiform, then expanded, nearly plane, firm, fleshy in the centre, thin towards the margin, glabrous, dirty brownish-white; stem short, rather slender; asci cylindrical; sporidia 8, elliptic, smooth, 14 × 8μ; paraphyses filiform.

Peziza muralis—Sow., "Fung.," t. 251.

On clay.

Cup from 2 to 7 lines across, nearly uniform in colour within and without, glabrous; stem about 1 to 1½ lines long, enlarging upwards into the thick fleshy base of the cup.

"The larger ones herein figured were sent by favour of the Rev. Mr. Alderson, from some clay walls in his garden at Havingham, Norfolk; the smaller ones grew on some pipe-clay intended for modelling at my own home, Mead Place. They differ much in size, but agree

so well in shape and substance that I consider them as the same species" (Sowerby, *l. c.*).

The original specimens, after the death of Sowerby, came into the hands of the Rev. M. J. Berkeley, by whose kind permission I was allowed to examine them.

Name—*Murus*, a wall; from its habitat.

B. STEM ROOTING.

(*a*) *Sporidia elliptic, smooth.*

8. *Peziza carbonaria.* A. and S.

Cup globose-campanulate, thin, fragile; hymenium reddish-ochrey, externally whitish, farinose; margin crenate; stem slender, variable in length; asci cylindrical; sporidia 8, elliptic, smooth, 18 × 8μ; paraphyses filiform, clavate apices.

Peziza carbonaria—A. and S., "Consp.," p. 314, t. 4, f. 2; Fries, "Sys. Myco.," ii. 64; B. and Br., "Ann. Nat. Hist.," 1063, t. 15, f. 15; Nyl., "Pez. Fenn.," p. 10; Karst., "Myco. Fenn.," p. 42; Gonn. and Rabh., iii. t. 4, f. 4; Cooke, "Handbk.," No. 1989.; "Mycogr.," fig. 284. *P. cupularis*, var. *carbonaria*—Weinm., "Hym.," 424. *Aleuria carbonaria*—Gill., "Champ.," p. 39.

Exs.—Rabh., "Fung. Eur.," 722; Rabh., "Myco. Eur.," ii. 622; Karst., "Fung. Fenn.," 456; Winter, "Fungi Eur.," 2512; Rehm., "Asco.," 702.

On burnt ground. Spring and autumn.

Gregarious, 3 to 8 lines broad; stem at times obsolete.

Distinguished from the preceding by its smaller size; more highly coloured hymenium, which is almost vermillion when young; and its sporidia.

Name—*Carbo*, charcoal; from its habitat.

Ascot (Mr. C. E. Broome). Morton Bay! (Mr. J. Baily). Whitcliffe, Ludlow! Wrekin, Salop! Attingham Park, Salop!

9. *Peziza ammophila.* Dr. and M.

Cup turbinate, fragile, thick; hymenium brown, externally pallid, dry; margin splitting into triangular

teeth: stem elongated, rooting, very fragile; asci cylindrical; sporidia 8, elliptic, smooth, 20 × 9μ; paraphyses filiform, clavate apices.

Peziza ammophila—Dr. and M., "Flo. d'Algerie," t. 28, fig. 2; B. and Br., "Ann. Nat. Hist.," No. 1619; "Grevillea," v. p. 59; Cooke, "Mycogr.," f. 100, 373. *Aleuria ammophila*—Gill., "Champ.," p. 38.

Exs.—Cooke, "Fung. Brit.," ed. ii. 645.

Immersed in sand on the sea-coast, at the roots of *Psamma*. Autumn.

Cups 1 inch high and broad; rooting stem 2 to 3 inches long. The sand adheres so closely to the floccose exterior that it forms a complete coating. The whole plant is extremely brittle, and so much immersed in the sand as hardly to be recognized.

Name—ἄμμος, sand, φίλος, loving; from its preference for sandy soil.

St. Andrews, N.B.! (Rev. Mark Anderson). Brampton Burrows, Ilfracombe! (Dr. T. A. Chapman).

10. *Peziza rapulum*, Bull.

Cup infundibuliform, margin at length broadly depressed, sub-umbilicate, thin, fragile, glabrous, transparent, varying from whitish straw-coloured to nearly fulvous; stem slender, elongated, rooting; asci cylindrical; sporidia 8, ovate-elliptic, 10 × 5μ; paraphyses filiform.

On the ground amongst leaves, etc. Spring.

Peziza rapulum—Bull., "Champ.," p. 265, t. 485, f. 3; Fries, "Sys. Myco.," ii. 59; "Eng. Flo.," V. v. 189; Cooke, "Handbk.," No. 1967; "Mycogr.," fig. 197; Gill., "Champ.," p. 38, c. i. (?) *Peziza rapula*—Pers., "Syn. Fung.," p. 658. *Peziza radicata*—Holms., ii. t. 9; Dicks., "Crypt.," i. p. 21; With., iv. p. 304. *Aleuria rapulum*—Gill., "Champ.," p. 38, c. i. (?).

The cup is rather shallow, ½ an inch or more broad; margin entire except when old, when it becomes reflexed and split; the exterior near the base is longitudinally wrinkled; the stem is 1 to 2 inches long, immersed in the ground, ordinarily furnished with fibrils.

This species was for many years included as British on the authority of Dickson, but a specimen now exists in the herbarium of the Rev. M. J. Berkeley, figured by Dr. Cooke in "Mycogr."

Name—*Rapulum*, a little turnip; from the shape, especially of the stem.

Subgenus III.—Otidea. Pers.

Cup subsessile, externally pruinose, dimidiately elongated, or obliquely contorted, becoming incised on one side. (Plate III. fig. 13.)

Name—*ωτίον*, a little ear; shaped like an ear.

Arrangement of the Species.

A. Sporidia elliptic, asperate .. .. .. species 11
B. Sporidia elliptic, smooth .. .. .. „ 12–16

Key to the Species.

	Cups veined beneath	*phlebophora*.
	Cups even beneath	1
1.	Paraphyses bent at the apices	*leporina*.
	Paraphyses erect and branched	*apophysata*.
	Paraphyses erect and unbranched	2
2.	Sporidia rough	*pleurota*.
	Sporidia smooth	3
3.	Cups rosy orange	*onotica*.
	Cups reddish flesh-colour	*auricularia*.

A. Sporidia elliptic, asperate.

11. *Peziza pleurota*. Phil.

Cup sessile, expanded, nearly cochleate, umber-brown paler externally, elongated on one side; asci cylindrical; sporidia 8, elliptic, asperate, 15 × 8μ; paraphyses linear septate, apices clavate, brown. (Plate III., fig. 13.)

Peziza pleurota—Phil. in Cooke's "Mycogr.," fig. 351.

On cow-dung. Autumn.

Cup 1¼ inch wide, elongated on one side, divided nearly to the base on the shorter side; sporidia rough, with a central nucleus.

Name—*πλευρόν*, a side, *οὖς*, an ear.

Near Shrewsbury!

B. SPORIDIA ELLIPTIC, SMOOTH.

12. *Peziza onotica.* Pers.

Cup substipitate, elongated on one side, ear-shaped, externally mealy; hymenium rosy or orange; base at length rugose; asci cylindrical; sporidia 8, elliptic, smooth, 1 to 2-guttulate, 14 × 8μ; paraphyses thickened at the summits.

Peziza onotica—Pers. "Syn. Fung.," p. 637; Fries, "Sys. Myco.," ii. p. 48; "Eng. Flo.," v. p. 187; Berk., "Outl.," p. 363; Cooke, "Handbk.," No. 1974; "Mycogr.," f. 210; Karst., "Myco. Fenn.," p. 41; Ditm. in Sturm., "Flo.," iii. t. 16; Sv., "Bot.," t. 486, f. 1; Weberb., t. 1, f. 6; Gonn. and Rabh., t. 2, f. 1; "Flo. Boruss.," t. 396; Weinm., p. 414; Cooke, "Mycogr.," fig. 210. *Peziza leporina*—Sow., "Fung.," t. 79. *Peziza rosea*—Schum., "Saell.," p. 416. *Peziza caligata*—Nyl., "Pez. Fenn.," p. 8. *Peziza unicisa*—Peck, "Reports of N. Y. St. Mus." *Otidea onotica*—Fckl., "Symb. Myco.," 329. *Peziza ochracea*—Karst., "Mon. Pez.," p. 110. *Aleuria onotica*—Gill., "Champ.," p. 40, c. i.

Exs.—Fckl., "F. Rh.," 1232; Cooke, "Fung. Brit.," ii. 365; Rabh., "Fung. Eur.," 215; Winter, "Fungi Eur.," 2313.

On the ground amongst leaves, in woods. Summer and autumn.

Cup 1 to 3 inches high and 1 to 2½ inches broad, most variable in form, sometimes nearly equal-sided and entire, but generally elongated on one side; exterior pale fulvous; disc pale orange.

The species with which it is most easily confounded is *Peziza leporina*, from which it is always to be distinguished by the colour of the disc and the straight paraphyses.

Name—ὄνος, an ass; like the ear of an ass.

Clopthill, Bedford (Rev. C. Abbott). Sir Wm. Jenningham's plantation, Norwich (Sowerby). Dorking; Laxton, Northamptonshire; Lea, King's Cliffe (Rev. M. J. Berkeley). Suffolk (D. Stock). Near Bristol (Herb.,

Leighton). Audley End, Essex (Leefe). Perth (Dr. M. C. Cooke). Weybridge (Mr. F. Currey). Little Plumstead and Cassey, Norfolk (Mr. Trimmer). Coed Coch (Rev. M. J. Berkeley). Sufton Court, Herefordshire! Lilleshall, Salop! Downton Castle, Salop! Mol-y-Golfa, Montgomeryshire! King's Lynn (Mr. C. B. Plowright).

13. *Peziza leporina.* Batsch.

Substipitate, elongated on one side, ear-shaped, subferruginous, externally farinose, pale ochraceous or subferruginous; base more or less stem-like; asci cylindrical; sporidia 8, elliptic, smooth, 1 to 2-guttulate, 12—14 × 7—8μ; paraphyses filiform, curved at the summit.

Peziza leporina—Batsch, "El.," p. 117; Pers., "Syn. Fung.," p. 637; Fries, "Sys. Myco.," ii. 47; Nees, "Sys.," f. 278; Berk., "Outl.," 363; Cooke, "Handbk.," No. 1973; Weberb., t. 1, f. 7; Gonn. and Rabh., t. 2, f. 4; Weinm., p. 414; Cooke, "Mycogr.," f. 211. *Peziza auricula*—Schæff., "Icon.," t. 156 (in part); "Flo. Dan.," t. 1077, f. 2. *Peziza cochleata*—Holms., "Ot.," ii. t. 6. *Otidea leporina*—Fckl., "Symb. Myco.," 329. *Aleuria leporina*—Gill., "Champ.," p. 40.

Exs.—Fckl., "F. Rh.," 1233; Rehm., "Asco.," 251, 653; Phil., "Elv. Brit.," No. 11; Roumg., "Fung. Gal.," 2951; Cooke, "Fung. Brit.," ed. ii. 542.

On the ground amongst leaves, in woods. August to October.

Cup 1 to 3 inches high, 1 to 3 inches broad, gregarious, often cæspitose; margin involute, divided to the base on one side; disc even or rarely wrinkled, a shade darker than the exterior; paraphyses slender, hardly thickened at the summits, but almost invariably crooked.

This fine species grows as large as *P. onotica* at times, but is not so brightly coloured, being throughout of a sober pale tan-colour, resembling common wash-leather used for cleaning plate.

Name—*Lepus*, a hare; from the colour or likeness to the ear of a hare.

Milton, East Bergholt, Coed Coch (Rev. M. J. Berkeley).

Weybridge (Mr. F. Currey). Carlisle (Dr. M. C. Cooke). Newbiggin Quarry, Carlisle! (Dr. Carlyle). Castle Rising, Norfolk! (Mr. C. B. Plowright). Abbots Leigh, near Bristol (Mr. C. Bucknall). Wrekin, Salop! Tibberton, Salop! Boreatton Park, Salop! General Cemetery, Shrewsbury! Kingsland, Shrewsbury! Dolgelly, North Wales!

14. *Peziza auricula.* Cooke.

Subcæspitose, fleshy, elongated on one side, ear-shaped, flesh-red, externally farinose; asci cylindrical, stipitate; sporidia elliptic, smooth, 22—28 × 12—14μ; paraphyses clavate at the summits (Cooke).

Peziza auricula—Cooke, "Mycogr.," fig. 213; Schæff., "Icon.," t. 156 (in part). *Peziza leporina*—Rabh., "Fung. Eur.," No. 512; Nyl., "Pez. Fenn.," p. 9; Karst., "Mon. Pez.," p. 111. *Aleuria auricula*—Gill., "Champ.," p. 40.

Exs.—Cooke, "Fung. Brit.," No. 473; Rabh., "Fung. Eur.," 512; Rehm., "Asco.," 652.

Cup 1 to 2 inches broad and high. Resembling *P. onotica* in habit, but different in colour and fruit (Cooke, *l. c.*).

Name—*Auricula*, the ear; from its shape.

Ross, Herefordshire!

15. *Peziza apophysata.* Cooke and Phil.

Cup sessile, unequal, lobed, subcontorted, elongated on one side, externally umber-brown; hymenium blackish-brown, smooth; asci cylindrical; sporidia 8, elliptic, 2-guttulate, smooth, 20—22 × 12μ; paraphyses slender, forked near the summits, subclavate.

Peziza apophysata—Cooke and Phil. in "Grevillea" (1876), v. p. 60; Cooke, "Mycogr.," fig. 350.

On the side of a wet ditch. Autumn.

Cup ½ to 1 inch broad, cæspitose or gregarious, irregular in form, margin indented, erect; paraphyses branched in a peculiar manner.

Name—ἀπόφυσις, an offshoot; from the branching paraphyses.

Near Shrewsbury!

16. *Peziza phlebophora.* B. and Br.

Cup poculiform, oblique, substipitate, finely pulverulent, venoso-costate at the base; asci cylindrical; sporidia 8, elliptic, smooth, 10—12 × 6μ; paraphyses sparse, linear.

Peziza phlebophora—B. and Br., "Ann. Nat. Hist.," No. 1153, t. 3, f. 9; Cooke, "Handbk.," No. 1970; "Mycogr.," fig. 217.

On clay bank.

Cup ½ to 1½ inch broad, often rather oblique, yellow or brownish, springing from a very short stem-like base, from which branched ribs are given off, ending in little pits; hymenium often venose.

Name—$\phi\lambda\acute{\epsilon}\psi$, a vein, $\phi\acute{\epsilon}\rho\omega$, to carry; from the veined base.

King's Cliffe (Rev. M. J. Berkeley). Brislington (Mr. C. E. Broome). Coed Coch, North Wales (Rev. M. J. Berkeley). Hill Plantation, near Carlisle! (Dr. Carlyle).

Subgenus IV.—Cochlearia. Cooke.

Cup sessile, externally pruinose, flexuose, cæspitose-contorted. (Plate III. fig. 14.)

Although the cups in this subgenus are sometimes laterally divided, they are rarely elongated on the one side, as in *Otidea.*

Name—*Cochlea*, the shell of a snail.

Arrangement of the Species.

A.	Sporidia elliptic, asperate	species 17–19
B.	Sporidia elliptic, smooth	„ 20–29

Key to the Species.

	Hymenium faint purple, changing to pale buff ..	*Ádæ.*
	Hymenium olivaceous umber	*grandis.*
	Hymenium orange red; sporidia rough	1
	Hymenium orange red or bright yellow; sporidia smooth	3
	Hymenium some shade of brown	4
1.	Paraphyses globose at the apices	*fibrillosa.*
	Paraphyses clavate at the apices	2

2.	Cups large, cæspitose, externally pruinose	*aurantia.*
	Cups small, solitary, externally smooth	*luteo-niteus.*
3.	Hymenium orange-red; cup sessile	*leuculenta.*
	Hymenium bright yellow; cup substipitate	var. *flavida.*
4.	Sporidia rough	5
	Sporidia smooth	6
5.	Hymenium alutaceous, paraphyses linear	*alutacea.*
	Hymenium dark umber-brown paraphyses linear	*badia.*
6.	Hymenium pale ochraceous; paraphyses linear, forked	*ochracea.*
	Hymenium umber-brown; paraphyses linear, forked or branched	*cochleata.*
	Hymenium umber; paraphyses clavate	7
7.	Hymenium pale ochraceous, sessile; on linen cloth	*linteicola.*
	Hymenium pale ochraceous, substipitate; on wood	*micropus.*
	Hymenium brownish yellow, with a shade of red; on wood	*isabellina.*

A. SPORIDIA ELLIPTIC ASPERATE.

17. *Peziza aurantia.* Œd.

Cup subsessile, irregular, oblique; hymenium orange, externally somewhat pruinose, whitish; asci cylindrical; sporidia 8, elliptic, biguttulate, asperate, 16 × 8μ; paraphyses clavate at the summits, full of orange granules. (Plate III. fig. 14.)

Peziza aurantia—"Flo. Dan.," t. 657, f. 2; Pers., "Obs.," 2, p. 76; Nees, "Sys.," f. 279; Fries, "Sys. Myco.," ii. 49; "Eng. Flo.," v. p. 187; Huss., i. t. 37; Berk., "Outl.," p. 363; Cooke, "Handbk.," No. 1975; "Brit. Fung.," t. 1; Price, f. 42; Weberb., t. 1, f. 1, t. 2, f. 3; Gonn. and Rabh., t. 1, f. 3; "Flo. Boruss.," t. 384; Secr., "Mycogr.," iii. 294; Karst., "Myco. Fenn.," 43; Weinm., p. 414; Pat., p. 123, f. 278. *Peziza aurantiaca*—Harzer, t. 72, B. *Peziza cochleata*—Batsch, f. 157. *Peziza coccinea*—Schæff., "Icon.," t. 148; Bull., "Champ.," t. 474; Sow., "Fung.," t. 78. *Helvella coccinea*—Bolt., t. 100. *Peziza dichroa*—Holms., "Ot.," ii. t. 7. *Aleuria aurantia*—Fckl., "Symb. Myco.," 325; Sacc., "Myco. Ven. Sp.," 167; Gill., "Champ.," p. 41, c. i.

Exs.—Fckl., "F. Rh.," 1228; Desm., "Crypt. Fr.," i. 521; Karst., "Fung. Fenn.," 142; Rabh., "Herb. Myco.," i. 523; Phil., "Elv. Brit.," 12; Ellis, "N. A. Fungi," 836; Roumg., "Fung. Gal.," 2769.

On the ground, often near stumps of felled trees, and amongst chips. Summer and autumn.

Cup from ½ an inch to 5 inches broad, sometimes densely cæspitose and much contorted, at others growing singly and equal, not oblique; disc of a bright clear orange, or deep orange red; margin often involute; externally nearly white, mealy, with minute sparkling granules; base prolonged into a short stem. The sporidia are coarsely tuberculate, with a prominent apiculus at each extremity. The odour in drying is pleasant, resembling *Cantharellus cibarius*.

Name—*Aurantius*, orange; of an orange colour.

Halifax (Bolton). King's Cliffe (Rev. M. J. Berkeley). Glasgow (Klotzsch). Kirby Bedon, Norfolk (Rev. K. Trimmer). Garthewen, Denbighshire (Rev. M. J. Berkeley). Twycross (Rev. A. Bloxam). Blaize Castle, near Bristol (Mr. C. E. Broome). Bitterly, Salop (Mrs. Price). Moccus, Herefordshire (Dr. M. C. Cooke). Kew Gardens (Mr. C. E. Broome). Epping Forest! (Dr. M. C. Cooke). Heywood Forest, near Hereford! (Dr. M. C. Cooke). Dinmore, near Hereford! Lyndhurst (Dr. M. C. Cooke). Botanic Gardens, Edinburgh (Dr. M. C. Cooke). Near Carlisle (Dr. Carlyle). King's Lynn (Mr. C. B. Plowright). Ludlow! Shrewsbury! Colwyn Bay (Mr. Walker).

Var. A. *Stipitata*. Phil.

Disc bright scarlet; stem equalling the height of the cup, 4 mm. (about 1½ lines).

Name—*Stipes*, a stalk.

This interesting variety was sent by the Rev. C. W. Penny, F.L.S., from Wokingham, Berkshire.

Var. B. *Atro-marginata*. Phil. and Plow.

Cup 4 lines to 1 inch broad; hymenium blood-red, wrinkled; margin black, owing to the presence of minute septate bristle-like hairs; the tuberculate sporidia are frequently furnished with thread-like appendages at the

extremities, pointing in opposite directions obliquely to the long axis of the sporidia.

Peziza aurantia (Œd.), var. *atro-marginata*—Phil. and Plow., in *Gard. Chron.*, Feb. 11, 1882, with figure.

Name—*Ater*, black, and *margo*, a margin.

Clenchwarton, Norfolk (Mr. C. B. Plowright).

18. *Peziza luteo-nitens.* B. and Br.

Cup sessile, nearly regular, concave, at length flexuose; hymenium bright orange-yellow; externally nearly white, smooth; asci cylindrical; sporidia 8, elliptic, biguttulate, 13 × 6μ; paraphyses filiform, subclavate at the apices.

Peziza luteo-nitens—B. and Br., "Ann. Nat. Hist.," No. 556; Berk., "Outl.," 364; Cooke, "Handbk.," No. 1976; "Mycogr.," fig. 205.

On the bare ground.

Having carefully examined the original specimens in Mr. Berkeley's herbarium, I found many of the sporidia decidedly asperate, though rather smaller than in *P. aurantia.*

Name—*Luteus*, yellow, *nitens*, shining.

King's Cliffe! (Rev. M. J. Berkeley). Tunbridge Wells! (Rev. Canon DuPort).

19. *Peziza badia.* Pers.

Cup subsessile, entire, flexuose, dark brown; margin at first involute, externally paler, pruinose, inclining to olive (as well as the margin); asci cylindrical; sporidia 8, elliptic, minutely asperate, 15—17 × 8μ; paraphyses clavate at the apices, sparse.

Peziza badia—Pers., "Obs.," 2, 78; Pers., "Myco. Eur.," p. 224; Fries, "Sys. Myco.," ii. 46; Gonn. and Rabh., t. 1, f. 3; Secr., "Mycogr.," iii. 296; Weberb., t. 2, f. 2; Berk., "Outl.," t. 22, f. 4; Huss., ii. t. 13; "Eng. Flo.," v. p. 187; Cooke, "Handbk.," No. 1969; "Mycogr.," fig. 226; Karst., "Myco. Fenn.," p. 56; Weinm., "Hym.," p. 413; Pat., p. 33, f. 79. *Helvella cochleata*—Bolt.,

"Fung.," t. 99. *Plicaria badia*—Fckl., "Symb. Myco.," 327; Sacc., "Myco. Ven. Sp.," p. 167. *Aleuria badia*—Gill., "Champ.," p. 43, c. i.

Exs.—Rabh., "Herb. Myco.," i. 337; Karst., "Fung. Fenn.," 141; Cooke, "Fung. Brit.," ii. 366; Phil., "Elv. Brit.," 9; Winter, "Fungi Eur.," 2208; Ellis, "N. A. Fungi," 981; Roumg., "Fung. Gal.," 1958; Cooke, "Fung. Brit.," ed. ii. 366.

On the ground in grassy, shady places, and on burnt ground. Summer and autumn.

Cup 1 to 2 inches broad; base fleshy, often projected into a short stem immersed in the ground, slightly villous and lacunose; the colour varies according to the degree of moisture and age; the hymenium is dark umber-brown, externally a little lighter and minutely granular; the sporidia, when mature, are slightly rough on the surface.

Name—*Badius*, chestnut-brown.

About Halifax (Bolton). St. Faith's, Norfolk (Rev. K. Trimmer). Coed Coch; Aboyne; Milton, Northamptonshire; Bowood; Hafod-dunas (Rev. M. J. Berkeley). Perth; Dinmore, near Hereford; Hampstead (Dr. M. C. Cooke). Tittleworth, Sussex! Malvern! (Mr. Spencer Perceval). Weybridge (Mr. F. Currey). Aberystwith! Trefrew! Norton Camp, near Craven Arms! Bomere, near Shrewsbury! Carlisle (Dr. Carlyle).

B. SPORIDIA ELLIPTIC, SMOOTH.

20. *Peziza leuculenta.* Cooke.

Cup sessile, fleshy, pleasant orange-colour, concave; externally fibrillose, paler; asci cylindrical; sporidia 8, elliptic, obtuse, biguttulate, smooth, 25 × 12μ; paraphyses clavate at the summits, filled with orange granules.

Peziza leuculenta—Cooke in Herb.; "Mycogr.," fig. 208. *Peziza luteonitens*—Cooke in "Grevillea," iii. fig. 122.

Exs.—Roumg., "Fung. Gal.," 2770.

On the ground.

Cup scarcely an inch broad, very much resembling *P. fibrillosa* (Currey), but with decidedly different fruit.

Name—*Leuculentus*, clear; from the colour.

Near Sheffield (Mr. H. C. Sorby, F.R.S.).

21. *Peziza fibrillosa*. Curr.

Cup nearly sessile, irregular, orange, clothed externally with dingy-white downy fibrillæ, which form a rather dense tomentose edging to the cup; asci cylindrical; sporidia 8, elliptic, smooth, eguttulate, 16—18 × 9μ; paraphyses filiform, globoso-clavate.

Peziza fibrillosa—Curr. in "Linn. Trans.," xxiv. p. 153; Cooke, "Handbk.," No. 1977; "Mycogr.," fig. 207.

On the ground. October.

Cup 1 inch broad, often divided on one side; when young the margin is involute, afterwards erect; the exterior is very tomentose, nearly white. It resembles *P. aurantia*, but differs in having smooth sporidia and paraphyses with globose summits.

Name—*Fibra*, a fibre; clothed with downy fibrillæ.

Hanham Wood! (Mr. F. Currey). King's Lynn! (Mr. C. B. Plowright).

22. *Peziza cochleata*. Bull.

Cup sessile, cæspitose, large, twisted, umber, externally pruinose; asci cylindrical; sporidia 8, elliptic, smooth, biguttulate, 16—19 × 7—8μ; paraphyses filiform, often branched and curved at the summits.

Peziza cochleata—Bull., "Champ.," t. 154, f. 2; Sow., "Fung.," t. 5; Fries, "Sys. Myco.," ii. 50; Gonn. and Rabh., t. 2, f. 5; Secr., "Mycogr.," iii. 296; "Eng. Flo.," v. p. 188; Berk., "Outl.," p. 363: Cooke, "Handbk.," No. 1971; "Micogr.," fig. 212; Weinm., "Hym.," p. 416; Roumg., "Crypt. Illus.," t. 265; Berk., *Gard. Chron.*, 1867. *Aleuria cochleata*—Gill., "Champ.," p. 42, c. i. *Fungoides fuscum*—Buxb., "Petr.," iv. t. 29, f. 1. *Peziza umbrina*—Pers., "Obs.," i. 77; Sv., "Bot.," t. 486, f. 2. *Elvela ochroleuca*—Schæff., "Icon.," t. 274. *Otidea*

cochleata—Fckl., "Symb. Myco.," 329; Sacc., "Myco. Ven. Sp.," p. 107.

Exs.—Fckl., "F. Rh.," 1232.

On the ground. Summer and autumn.

Cup 1 to 2 inches broad, sometimes larger, often densely cæspitose, hence irregular and much contorted.

Name—*Cochlea*, the shell of a snail.

King's Cliffe, Laxton, Aboyne, Milton, Lea, Coed Coch (Rev. M. J. Berkeley). Llanrwst, North Wales! Altringham Park, Shrewsbury!

23. *Peziza alutacea.* Pers.

Cup subsessile, contorted, pallid-fuliginous; asci cylindrical; sporidia 8, elliptic, minutely asperate, 12—14 × 6—7μ; paraphyses linear, sparse.

Peziza alutacea—Pers., "Syn. Fung.," p. 638; Cooke, "Mycogr.," f. 214. *Peziza cochleata* β. *alutacea*—Fries, "Sys. Myco.," ii. 50; Weinm., "Hym.," p. 416. *Aluria alutacea*—Gill., "Champ.," p. 42.

Exs.—Fckl., "F. Rh.," 1229.

On the ground in woods. Autumn.

Cup 2 inches or more broad, resembling *P. cochleata*, from which the rough sporidia distinguish it.

Name—*Aluta*, tanned leather; tan-coloured.

Milton, 1842, and Coed Coch, 1877; near Hereford, 1878.

24. *Peziza grandis.* Pers.

Cæspitose or solitary, sessile, flexuous; externally olivaceous-umber, with a lacunose albo-tomentose base; hymenium ochery yellow; asci cylindrical; sporidia 8, elliptic, narrower at the ends, biguttulate, 16 × 7μ; paraphyses linear, straight or curved at the apices.

Peziza grandis—Pers., "Obs.," i. p. 27; Pers., "Syn. Fung.," p. 636. *Peziza abietina*, var. c.—Fries, "Sys. Myco.," ii. 47. *Peziza grandis*—Boud. in Cooke, "Mycogr.," fig. 376; Pat., p. 209, f. 480 (?). *Aleuria grandis*—Gill., "Champ.," p. 42 (?).

On the ground in pine woods.

Cup 2 to 3 inches broad, 1½ inches high, sack-shaped; margin entire, but occasionally divided to the base on one side; externally dark olive green; hymenium dull ochery brown; the mycelium ferruginous. Very distinct from *P. leporina.*

Name—From *grandis*, large.

Heywood Forest, near Hereford! (Mr. C. B. Plowright).

25. *Peziza ochracea.* Boud.

Cup sessile, cæspitose, entire, subflexuous, bright ochraceous, externally furfuraceous; asci cylindrical; sporidia 8, elliptic, biguttulate, hyaline, smooth; 22—24 × 12μ; paraphyses linear, often divided at the summits into two or three short obtuse processes.

Peziza ochracea—Boud. in Herb.; Cooke, "Mycogr.," fig. 377; Pat., p. 170, f. 374. *Aleuria ochracea*—Gill., "Champ.," p. 41, c. i.

On the ground in beech woods. Spring.

Cup 1 to 2 inches broad, fleshy at the base, densely cæspitose; hymenium wrinkled; exterior coarsely furfuraceous. The paraphyses are septate, and often branched at the top into two or three short processes.

Name—*Ochra*, ochre; the colour of yellow ochre.

The Wrekin, Salop!

26. *Peziza Adœ.* Sadler.

Cup sessile, subcæspitose, cochleate, irregular, becoming expanded; margin entire or lobed, reflexed; hymenium white, rosy white, violaceous, or ochraceus; asci cylindrical; sporidia 8, elliptic, biguttulate, smooth, 13 × 7μ; paraphyses linear.

Peziza Adœ—Sadler; Cooke, "Trans. Bot. Soc. Edin.," 1857, p. 45 (with figure); "Grevillea," vi. t. 97, figs. 1–3. *Peziza domiciliana*—Cooke in *Gard. Chron.*, 1877.

Exs.—Cooke, "Fung. Brit.," ed. ii. 649; Phil., "Elv. Brit.," No. 154.

On damp walls, etc.

Cup ½ an inch to 2 inches broad; disc variable in form and colour, but always thin and delicate.

Damp wall of Inverleith House, Edinburgh! (Miss Ada Balfour, after whom it is named). Garden at Dalston, London (herb. of Dr. M. C. Cooke).

27. *Peziza isabellina.* Wor. Smith.

Cup large, sessile, cæspitose, fleshy, subglobose, internally smooth, brownish yellow, with a shade of red, externally paler, subpruinose; asci cylindrical; sporidia 8, elliptic, smooth, 14 × 80; paraphyses linear, clavate summits.

Peziza isabellina—Worthington Smith in "Grevillea," i. p. 136, t. 9; Cooke, "Mycogr.," fig. 241.

On decayed coniferous wood.

Cup 1 to 2 inches broad.

Name—From the French *isabelle*, dove-coloured, or, as some say, the colour of dirty linen.

King's Lynn! (Mr. C. B. Plowright).

28. *Peziza micropus.* Pers.

Cup substipitate, medium-sized, oblique, flexuous, rather fragile, pallid-fuliginous, externally furfuraceo-granulose; stem short, rather stout; asci cylindrical; sporidia 8, elliptic, smooth, 15 × 9μ; paraphyses linear, slightly thickened at the summits.

Peziza micropus—Pers., "Syn. Fung." 642; Pers., "Icon. et Descr.," t. 8, f. 3; Fries, "Sys. Myco.," ii. 54; Berk., "Outl.," t. 22, f. 5; Cooke, "Handbk.," No. 1983; Weinm., "Hym.," 418; Cooke, "Mycogr.," fig. 300; Pat., p. 121, f. 273. *Pustularia micropus*—Fckl., "Symb. Myco." 323. *Aleuria micropus*—Gill., "Champ.," p. 204.

On damp wood, beech, ash, and poplar, and decaying carpet. Spring and Autumn.

Cup ½ to 1 inch broad, hemispherical, or sub-infundibuliform; mouth oblique; margin furfuraceo-tomentose, and the exterior granulated with large superficial squamules; stem 1½ lines long, rather thick, or absent altogether.

Name—μικρός, small, πούς, a foot; from the short stem.

Fineshade, Northamptonshire (Rev. M. J. Berkeley).

Badminton (Rev. M. J. Berkeley). Menmuir, N.B. (Rev. M. L. Anderson). Moccas, Herefordshire! Castle Rising! (Mr. C. B. Plowright). Warwick! (Mr. Spencer Percival).

Var. *flavida*. Phil.

This differs from the type species in being less furfuraceous externally, a brighter colour (decidedly yellow), not pallid-fuliginous, and having sporidia rather longer ($19 \times 8\mu$).

On decayed wood.

Name—*Flavus*, light yellowish.

Moccas, Herefordshire! (Mr. C. B. Plowright).

29. *Peziza linteicola*. Phil. and Plow.

Cup sessile, cæspitose, very fragile, cochleate or entire, fulvous; externally farinose, hoary; margin crenate; asci cylindrical; sporidia 8, elliptic, eguttulate, smooth, $12—15 \times 8—10\mu$; paraphyses linear, septate, clavate at the apices.

On damp rotting linen cloth.

Cup $\frac{1}{2}$ to $\frac{3}{4}$ of an inch broad; sometimes divided to the base on one side, the edges of the division involute, at others entire, cupulate, arising from white creeping mycelium; sporidia vary much in size, and are shortly elliptical, approaching globose. The apices of the paraphyses are clavate or pear-shaped, with one or two large elliptic transparent nuclei devoid of granules. The cells forming the exterior of the cup are rather small (from $10—20\mu$ in diameter).

Name—*Linteum*, linen, and *colo*, to inhabit; growing on linen.

King's Lynn! (Mr. C. B. Plowright).

SUBGENUS V.—DISCINA.

Cup large, sessile, or substipitate, between waxy and fleshy, flattened or reflexed, entire or lobed, and somewhat waved. (Plate III. fig. 15.)

Name—δίσκος, a round plate.

ARRANGEMENT OF THE SPECIES.

A. Sporidia globose .. .. species 30–31
B. Sporidia elliptic, smooth .. .. .. „ 32–35

KEY TO THE SPECIES.

	Sporidia spherical, rough	*trachycarpa.*
	Sporidia spherical, smooth	*leiocarpa.*
	Sporidia elliptic	1
1.	Hymenium purple; cup subglobose	*coronaria.*
	Hymenium umber-brown; cup costate below ..	*venosa.*
	Hymenium fulvo-rufescent, at length reticulate; cup substipitate	*reticulata.*
	Hymenium fulvous; cup repand, substipitate ..	*repanda.*

A. SPORIDIA GLOBOSE.

30. *Peziza trachycarpa.* Curr.

Cup orbicular, then plane, very often umbilicate; hymenium blackish-brown, rough, tuberculate; externally granulated; asci cylindrical; sporidia 8, globose, muricate, brown, 12—15μ; paraphyses either filiform with clavate apices, or broad, pallid-brown, resembling empty asci. (Plate III. fig. 15.)

Peziza trachycarpa—Curr., "Linn. Trans.," xxiv. p. 493, t. 51, figs. 3 and 5; B. and Br., "Ann. Nat. Hist.," No. 1061, t. xiv. fig. 13; Cooke, "Handbk.," No. 1984; "Mycogr.," fig. 257; Karst., "Myco. Fenn.," p. 61. *Peziza furva*—Nyl., "Pez. Fenn.," p. 15. *Aleuria trachycarpa*—Gill., "Champ.," p. 203, c. i.

Exs.—Rabh., "Fung. Eur.," 620; Karst. "Fung. Fenn.," 457; Phil., "Elv. Brit.," 57.

On burnt ground. Summer and autumn.

Cup ½ to 1½ broad.

Name—τραχὺς, rough, καρπός, fruit; from the rough sporidia.

Ascot! (Rev. G. H. Sawyer). Norton Camp, near Craven Arms! Bomere, near Shrewsbury! Attingham Park, Shrewsbury!

31. *Peziza leiocarpa.* Curr.

Cup at first connivent, subglobose, externally (principally towards the margin) rough, vinous-brown, thin,

semi-pellucid, sometimes pallid near the base, at length expanded, almost plane; hymenium olive-brown; asci cylindrical; sporidia 8, globose, smooth, 9—10μ; paraphyses filiform, gradually enlarged at the apices.

Peziza leiocarpa—Curr., "Linn. Trans.," xxiv. p. 493, t. 51, f. 4 and 8; B. and Br., "Ann. Nat. Hist.," No. 1062, t. xiv. f. 14; Cooke, "Handbk.," No. 1985; "Mycogr.," fig. 256; Pat., p. 70, fig. 163 (exclude sporidia and paraphyses). *Plicaria foveata*—Fckl., "Symb. Myco.," p. 326 (?)

On burnt ground.

Cup 1½ to 3 inches broad; hymenium at first pale, then dark olive-brown. Resembling at first *Peziza pustulata* (Batsch).

Name—λεῖος, smooth, καρπός, fruit; from the smooth sporidia.

Ascot! (Rev. G. H. Sawyer).

B. SPORIDIA ELLIPTIC, SMOOTH.

32. *Peziza repanda.* Wahl.

Cup solitary or cæspitose, large, incised, and repand, internally subrugose, brown; externally farinose, whitish, base elongated, rooting; asci cylindrical; sporidia 8, elliptic, biguttulate, smooth, 18—20 × 10μ; paraphyses linear, sparse.

Peziza repanda—Wahl., "Ups.," p. 466; Fries, "Sys. Myco.," ii. 51; Grev., "Sc. Crypt. Flo.," t. 59; Berk., "Eng. Flo," v. 188; Cooke, "Handbk.," No. 1978; "Mycogr.," fig. 240; Weinm., "Hym.," p. 117. *Aleuria repanda*—Gill., "Champ.," p. 43.

On old trunks and on the ground. Autumn.

Cup 1 to 4 inches broad; cells of the exterior of the cup very large. This is one of the species with which many others have been confounded, so that it is very difficult to quote synonyms with any degree of certainty. If regard be paid to the sporidia, great paucity of paraphyses, and large external cells, there should

not be much difficulty in determining it. Karsten's *Peziza repanda* ("Myco. Fenn.," p. 54), with sporidia 10—14 × 6—7μ, must be something different. Fuckel describes the sporidia in his "Symb. Myco." as "episporio granuloso-tuberculato, fusco," measuring 16 × 8μ. This again cannot be the present species (Dr. Cooke in "Mycogr.").

Name—*Repandus*, bent backwards.

Milton, Northamptonshire (Rev. M. J. Berkeley). King's Cliffe and Apethorpe (Rev. M. J. Berkeley). Hitchin (Professor Henslow). Foxhall, near Edinburgh (Messrs. Wauch and Greville). Reading; Epping; Rugby (Dr. M. C. Cooke). Attingham Park, near Shrewsbury! Wrekin, Salop! Shelton Rough, near Shrewsbury!

33. *Peziza reticulata*. Grev.

Cup large, fulvo-rufescent within, plicate in the centre, reticulated; externally whitish, pruinose; margin involute, at first entire, becoming variously lacerated, subrepand; stem either thick and short or none; asci subcylindrical; sporidia 8, elongato-elliptic, smooth, 23 × 10μ; paraphyses clavate apices, filled with brown granules.

Peziza reticulata—Grev., "Sc. Crypt. Flo.," t. 153; Kromb., t. 61, f. 18–22; Berk., "Outl.," t. 22, f. 6; Cooke, "Mycogr.," fig. 227. *Plicaria reticulata*—Fckl., "Symb. Myco.," 328. *Peziza venosa*—Cooke, "Handbk.," No. 1968 (partly). *Aleuria reticulata*—Gill., "Champ.," p. 43, c. i.

Exs.—Fckl., "F. Rh.," 2083.

Cup 2 to 5 inches broad. This has usually been united with *P. venosa*, but, as we think, without good reason. The odour is by no means so powerful and nitrous as in that species, the colour is lighter, substance less tough, sporidia more constant, and different in size and form (Dr. M. C. Cooke in "Mycogr.").

Name—*Reticulatus*, made like a net; from the markings on the hymenium.

Foxhall, near Edinburgh (Captain Wauch). Rafford, N.B. (Rev. Dr. Keith). Near Lewes (Mr. F. Currey).

Mossburnford (Mr. Jerdon). Brockley Combe, Bristol (Mr. C. Bucknall). Near Shrewsbury!

34. *Peziza coronaria.* Jacq.

Cup at first buried, then more or less exposed, subglobose, splitting in a stellate manner, nearly violet or rosy, externally pallid; stem short, thick, rooting; asci cylindrical; sporidia 8, elliptic, 1 to 2-guttulate, smooth, 15—18 × 8—9μ; paraphyses straight, linear, slightly enlarged above, sometimes forked.

Peziza coronaria—Jacq., "Misc. Austr.," i. p. 140, pl. 10, 1778; Cooke, "Mycogr.," f. 238; Pat., p. 32, f. 77. *Peziza amplissima*—Fries, "Summa Veg. Scan.," p. 349. *Peziza eximia*—D. R. and Lev., "Flo. Alger.," t. 28, f. 9. *Peziza geaster*—Rabh., "Myco. Eur.," t. 3, f. 5. *Peziza macrocalyx*—Smith in "Journ. Bot.," 1869, p. 345, t. 98; Cooke, "Handbk.," No. 1981; Kalch., "Icon. Select.," t. 40, f. 2. *Peziza sicula*—Inzenga, "Fung. Sici.," t. viii. f. 4. *Aleuria eximia*—Gill., "Champ.," p. 48, c. i.

On the ground under trees. Spring.

It is found underground, in forests of fir-trees, singly or from two to five together. In its progressive development it rises about half out of the ground. At first it is closed, but later it splits, star-like, from the top downwards to the middle of its cup, or sometimes even further down still, into from 7 to 10 more or less pointed strips. The exterior is of a dirty pale blue, clothed with a thin white transient fur, and at the base of the cup is a short stem. In large specimens the cup is three inches high and broad, deeply cup-shaped, with the rim at length bent downwards. The hymenium is at first pale, and later a dark violet (Fresenius).

"Cups very large, 4 or 5 inches when expanded; asci very long; sporidia uniseriate in the upper portion of the ascus, with one or two nuclei. After having been dried and then again moistened, the nuclei give the sporidia the appearance of being uniseptate. It was doubtless this illusion which led to the sporidia of *Peziza eximia*, in "Flora d'Algérie," being represented as uniseptate.

This appearance is very deceptive in nucleated sporidia, and is not confined to the present species, as we have observed the same thing in *Peziza Sumneriana*, after it has been for some time dried" (Dr. Cooke in "Mycogr.").

Name—*Corona*, a crown; from the shape.

Chichester, Sussex (Dr. Paxton). Street, Somerset (Mr. W. G. Smith). King's Lynn! (Mr. C. B. Plowright). Woodchester, near Stroud!

35. *Peziza venosa*. Pers.

Cup sessile or substipitate, umber-brown; externally whitish, rugose with costate veins; base produced into a very short stem; asci cylindrical; sporidia 8, elliptic, smooth, granular within, 18—23 × 10—12μ; paraphyses copious, clavate at the summit, brown.

Peziza venosa—Pers., "Myco. Eur.," p. 220; Fries, "Sys. Myco.," ii. 46; Weberb., t. 2, f. 1 (?); Cooke, "Myco.," fig. 228. *Elvela cochleata*—Wieff. in Jacq., "Misc. Austr.," ii. t. 17, f. 1. *Peziza ancilis*—Rehm., "Asco," No. 402; Cooke, "Myco.," f. 372. *Aleuria venosa*—Gill., "Champ.," p. 37, c. i.

Exs.—Cooke, "Fung. Brit.," No. 557; Rehm., "Asco.," No. 402.

On the ground. Spring. Esculent.

Cup 1 to 2 inches broad or more, nearly as high. The strong nitrous odour of this species is very characteristic.

Name—*Vena*, a vein; from the veined hymenium.

King's Cliffe, Sibbertoft, Apethorpe (Rev. M. J. Berkeley). Warwick (Mr. Spencer Perceval). Shelton Rough, near Shrewsbury! Hospital Field, Lynn (Mr. C. B. Plowright). Bristol! (Mr. Green). Ingham, Norfolk (Rev. K. Trimmer).

SUBGENUS VI.—GALACTINIA. Cooke.

Cup sessile, entire, fleshy, exuding, when cut or wounded, a milky juice. (Plate IV. fig. 16.)

Name—γαλάκτινος, milky.

Two British species.

KEY TO THE SPECIES.

Hymenium violet-brown; juice violet	*saniosa*,
Hymenium wax-brown; juice turning yellow ..	*succosa*.

36. *Peziza succosa*. Berk.

Cup medium size, fleshy, sessile, hemispherical, pale wax-brown; externally paler, pruinose; margin inflexed; juice bright yellow; asci cylindrical; sporidia 8, elliptic, biguttulate, asperate, 20 × 11—12μ; paraphyses linear, thickened upwards. (Plate IV. fig. 16.)

Peziza succosa—Berk., "Ann. Nat. Hist.," No. 156, t. 10, f. 5; "Outl.," p. 363; Cooke, "Handbk.," No. 1972; "Mycogr.," fig. 243; Kickx., "Crypt. Flan.," i. 495; Pat., 72, f. 166. *Aleuria succosa*—Gill., "Champ.," p. 45, c. i.

Exs.—Phil., "Elv. Brit.," No. 10; Cooke, "Fung. Brit.," ed. ii. 650.

On the naked ground in damp and shady woods. Autumn.

Cup 1 inch broad, subglobose, then hemispherical, sometimes cochleate, but generally entire, when moist transparent, pale brown; exterior mealy or pruinose, dirty white; the juice is limpid and nearly colourless when it issues from the wound, but soon changes to yellow; the sporidia are certainly rough when mature.

Name—*Succus*, juice.

King's Cliffe and Apethorpe (Rev. M. J. Berkeley). Bristol (Mr. H. O. Stephens). Doward Rocks (Mr. Spencer Perceval). Arkol Hill, Salop! Lilleshall, Salop! Craven Arms, Salop!

37. *Peziza saniosa*. Schrad.

Cup sessile, thick, fleshy, campanulate, regular, purplish brown or dark violet; externally pulverulent, umber-brown or purplish-brown; juice dark violet, abundant; asci cylindrical; sporidia 8, elliptic, biguttulate, smooth, 15 × 7·5μ; paraphyses linear.

Peziza saniosa—Schrad., "Bot. Jour.," 1799, ii. p. 64; Fries, "Sys. Myco.," ii. 65; Cooke, "Handbk.," No. 1991; Berk., "Mag. Zool. and Bot.," No. 87, t. 7, f. 2; Phil. in

"Grev.," ii. pl. 24, fig. 3; Cooke, "Mycogr.," fig. 299; Pat., p. 170, f. 375. *Aleuria saniosa*—Gill., "Champ.," p. 46, c. i.

On the ground and trunks in very damp, shady places.

Cup 4 lines high, 4 lines broad. The flesh is thick, occupying half the height of the cup. The juice issues freely when the flesh is cut.

Name—*Sanies*, gore; from the juice.

King's Cliffe and Apethorpe (Rev. M. J. Berkeley). Ercall Hill, Salop! Doward Rocks, Herefordshire! (Mr. Spencer Perceval). Bristol (Mr. H. O. Stephens).

Subgenus VII.—Pustularia. Cooke.

Cups entire, sessile, externally mealy, granulated, or warty. (Plate IV. fig. 17.)

Name—*Pústula*, a blister; from the name of the typical species *pustulata*, which is warted on the exterior.

Arrangement of the Species.

A.	Sporidia globose, asperate	species 38
B.	Sporidia elliptic, asperate	„ 39–40
C.	Sporidia elliptic, smooth	„ 41–43

Key to the Species.

	Sporidia spherical, brown, rough	*radula.*
	Sporidia elliptic, rough	1
	Sporidia elliptic, smooth	2
1.	Margin of cup erose, inflexed, paler than below ..	*pustulata.*
	Margin of cup entire, erect, same colour as below ..	*indiscreta.*
2.	Cup at first globose; hymenium pallid brown ..	*vesiculosa.*
	Cup infundibuliform, then expanded; hymenium yellowish	*cerea.*
	Cup hemispherical; disc bright brown	*bufonia.*

A. Sporidia globose, asperate.

38. *Peziza radula.* B. and Br.

Large, cup-shaped, sessile, at length depressed, vinous brown; externally black, and rough with subequal warts; asci cylindrical; sporidia 8, globose, tuberculate, brown,

22—25μ; paraphyses septate, clavate at the apices. (Plate IV. fig. 17.)

Peziza radula—B. and Br., "Ann. Nat. Hist.," xviii. p. 77; "Outl.," p. 364; Cooke, "Handbk.," No. 1987; "Mycogr.," fig. 293.

On the ground in woods.

Cup depressed, sessile, nearly an inch across, black externally, broken into nearly equal, distinct, subconical warts, like those of *Genea verrucosa;* hymenium of a dark vinous-brown; asci large, obtuse; sporidia large, globose, containing a single nucleus, rough with obtuse distinct tubercles; paraphyses septate, with the ultimate articulation clavate (B. and Br.).

Name—*Radula,* an instrument to scrape with; from the likeness of the surface to a nutmeg-grater.

Near Bristol (Berkeley and Broome).

B. SPORIDIA ELLIPTIC, ASPERATE.

39. *Peziza pustulata* Pers.

Cup sessile, subglobose, becoming expanded; hymenium pallid or smoky brown; externally whitish furfuraceous near the obtuse, entire, inflexed margin, smoky-brown below; asci cylindrical; sporidia 8, elliptic, asperate, 20 × 10μ; paraphyses septate, clavate at the apices.

Peziza pustulata—Pers., "Syn. Fung.," p. 646; Fries, "Sys. Myco.," ii. 55; Cooke, "Handbk.," No. 1986; Phil. in "Grevillea," ii. pl. 24, f. 2; Cooke, "Mycogr.," fig. 298; Weinm., "Hym.," 419. *Octospora pustulata*—Hedw., "Mus. Frond.," ii. t. 6, f. A. *Plicaria pustulata*—Fckl., "Symb. Myco.," p. 327. *Peziza cochleata,* var. β.—Batsch, "El.," fig. 157. *Peziza spurcata*—Pers., "Myco. Eur.," 226. *Peziza plicata*—Pers., "Myco. Eur.," i. 226. *Aleuria pustulata*—Gill., "Champ.," p. 45, c. i.

Exs.—Fckl., "F. Rh.," 1227; Phil., "Elv. Brit.," No. 14.

On the ground and on charcoal beds. Summer and autumn.

Cup ½ an inch to 1½ inches broad. The flesh is thick and rather firm; the exterior of the cup coarsely furfuraceous, dark sooty-brown, but pale towards the subcrenate margin. It is gregarious, and sometimes cæspitose. The apices of the paraphyses are filled with brown granules.

Name—*Pustula*, a blister; having convex elevations like blisters.

Ercall Hill, Salop! Glamis (Rev. J. Stevenson).

40. *Peziza indiscreta.* Phil. and Plow.

Scattered or crowded, sessile, hemispherical, fleshy; hymenium concave, blackish-brown; externally somewhat verrucose, umber-brown; asci cylindrical; sporidia 8, elliptic, 1 to 2-guttulate, asperate, 16—18 × 9—10μ; paraphyses linear, septate, slightly thickened at the apices.

Peziza indiscreta—Phil. and Plow., "Grevillea," viii. p. 99.

On the earth under lime-trees.

Cup 4 to 7 lines broad.

Name—*Indiscretus*, not distinguished, or resembling many others.

North Wootton, Norfolk! (Mr. C. B. Plowright).

C. SPORIDIA, ELLIPTIC, SMOOTH.

41. *Peziza vesiculosa.* Bull.

Cup large, entire, sessile, at first globose, somewhat turbinate, then expanded and campanulate; hymenium pallid-brown; margin connivent, somewhat crenate; externally furfuraceous; asci cylindrical; sporidia 8, elliptic, smooth, 20—22 × 12μ; paraphyses linear, enlarged upwards.

Peziza vesiculosa—Bull., "Champ.," t. 457, f. 1; Fries, "Sys. Myco.," ii. 52; Grev., "Sc. Crypt. Flo.," t. 107; Sow., t. 4; "Eng. Flo.," v. p. 188; Kickx., "Flo. Flan.," 494; Karst., "Myco. Fenn.," p. 52; Cooke,

"Handbk.," 1980; "Mycogr.," f. 242; Pat., p. 169, f. 373. *Helvella vesiculosa*—Bolt., t. 175. *Peziza lycoperdioides*—D. C., "Flo. Fr.," ii. 87 (partly). *Pustularia vesiculosa*—Fckl., "Symb. Myco.," p. 329; Sacc., "Myco. Ven. Sp.," p. 167. *Aleuria vesiculosa*—Gill., "Champ.," p. 45. c. i.

Exs.—Karst., "Fung. Fenn.," 818; Phil., "Ely. Brit.," 13; "Erb. Crit. Ital.," 773; Sacc., "Myco. Ven.," 733.

On the ground, rich soil, manure heaps, rotten leaves, etc. Spring and autumn.

Cup 1 to 3 inches broad, often cæspitose, sometimes repand. The base of the cup is very fleshy, and frequently projected into a short thick stem, covered with abundant white mycelium; the hymenium has a tendency to separate itself from the flesh of the cup at the bottom.

Name—*Vesicula*, a little bladder.

Midlands (Purton). Bungay (D. Stock). Fulham (Herb. Kew). Northamptonshire (Rev. M. J. Berkeley). Paddington (Herb. Kew). Pen-y-gwyrd, North Wales! Church Stretton! Minsterley, Salop! on manure in my garden! Carlisle (Dr. Carlyle). Near Bristol (Mr. Spencer Perceval).

42. *Peziza cerea*. Sow.

Cups large, gregarious, cæspitose, infundibuliform, repand, fleshy, very fragile; hymenium yellowish; externally furfuraceous, whitish, with a villous stem-like base; asci cylindrical; sporidia 8, elliptic, smooth, 20 × 9μ; paraphyses linear, enlarged upwards.

Peziza cerea—Sow., "Fung.," t. 3; Fries, "Sys. Myco.," ii. 52; "Eng. Flo.," v. 188; Berk., "Outl.," p. 363; Price, fig. 80; Cooke, "Handbk.," 1979; "Mycogr.," 244; Karst., "Myco. Fenn.," p. 54; Bull., "Champ.," t. 44; Weinm., "Hym.," 117; Kickx., "Crypt. Flan.," p. 495. *Plicaria cerea*—Fckl., "Symb. Myco.," p. 327. *Peziza vesiculosa*, var. *cerea*—Rehm., "Asco.," 201. *Aleuria cerea*—Gill., "Champ.," p. 44.

Exs.—Fckl., "F. Rh.," 1225; Rehm., "Asco.," No. 201.

On tan beds, on the ground amongst leaves, etc. Spring.

Cup 1 to 3 inches broad. It resembles *Peziza vesiculosa*, from which it differs in its more fragile texture, and rather smaller sporidia.

Name—*Cereus*, like wax; from the beeswax colour.

Uffington; Coed Coch (Rev. M. J. Berkeley). Twycross (Rev. A. Bloxam). Glamis (Rev. J. Stevenson). Forres (Rev. Dr. Keith). On tan, North Wootton! (Mr. C. B. Plowright). Ludlow, on tan (Mrs. Price).

43. *Peziza bufonia*. Pers.

Cup hemispherical, often fragile; hymenium bright brown, externally warty, of the same colour; margin entire or laterally incised; stem short, rooting, becoming pallid; asci cylindrical; sporidia 8, elliptic, smooth, 20—24 × 10—12μ; paraphyses filiform, clavate apices.

Peziza bufonia—Pers., "Myco. Eur.," p. 225; Fries, "Sys. Myco.," ii. p. 54; Berk., *Gard. Chron.*, Jan. 13, 1866; B. and Br., "Ann. Nat. Hist.," No. 1154, t. 3, f. 12; Cooke, "Handbk.," No. 1982; "Micogr.," fig. 292.

In moist woods, and on rubbish heaps. Autumn.

A fine species, agreeing in size and colour with *Peziza umbrina;* externally rough with conical warts, opaque, and of a dingy earth-colour, somewhat resembling *P. vesculosa*, but distinguished by the brown hymenium and verrucose cup. Sporidia ·00075—·0008 inches (B. and Br.).

Name—*Bufo*, a toad; warted like a toad.

Grantham (Mr. W. Summerby).

Subgenus VIII.—Geoscypha. Cooke.

Cup entire, or lobed, sessile, externally even, subpruinose, sometimes quite smooth. (Plate IV. fig. 18.)

Name—γη, the earth, σχῦφος, a cup.

Arrangement of the Species.

A. Sporidia elliptic, asperate .. .. species 44-45
B. Sporidia elliptic, smooth .. .. .. „ 46-57

KEY TO THE SPECIES.

	Sporidia rough; hymenium umber-brown	*brunneo-atra.*
	Sporidia rough; hymenium livid-purple	*lividula.*
	Sporidia smooth	1
1.	Hymenium black, perforated	*cribrosa.*
	Hymenium pale buff; margin of cup dentate ..	*subrepanda.*
	Hymenium purplish or violet	2
	Hymenium some shade of brown	3
2.	Hymenium livid-purple; sporidia oblong-elliptic; paraphyses linear	*purpurascens.*
	Hymenium livid-purple; sporidia elliptic; paraphyses clavate	*exidiiformis.*
	Hymenium purplish-blue; sporidia elliptic; paraphyses slender, subclavate	*violacea.*
	Hymenium varying from yellowish to purple; sporidia elliptic; paraphyses stout, clavate ..	*undata.*
3.	Hymenium pale ochraceous; paraphyses linear ..	*tectoria.*
	Hymenium pale ochraceous; paraphyses clavate ..	*viridaria.*
	Hymenium ochraceous; paraphyses subclavate; growing on wood..	*mellea.*
	Hymenium cinnamon; paraphyses linear	*ampliata.*
	Hymenium blackish-brown; paraphyses clavate, not branched	*sepiatia.*
	Hymenium blackish-brown; paraphyses pyriform and branched	*sterigmatizans.*

A. SPORIDIA ELLIPTIC, ASPERATE.

44. *Peziza lividula.* Phil.

Cup obconical, becoming expanded, at length applanate, fleshy, glabrous, livid-purple or fuliginous; margin entire; hymenium convex, undulating; asci cylindrical; sporidia 8, elliptic, asperate, 18—20 × 10μ; paraphyses septate, clavate at the apices. (Plate IV. fig. 18.)

Peziza lividula—Phil. in Cooke's "Mycogr.," fig. 277.

On the ground in damp spots. Autumn.

Name—*Lividus*, lead-colour; somewhat lead-colour.

Near Shrewsbury!

45. *Peziza brunneo-atra.* Desm.

Cup sessile, solitary, largish, nearly plane, entire, fleshy, fragile, smooth, brown-black; asci cylindrical; sporidia 8, ovate, subhyaline, minutely asperate, 20 × 10μ; paraphyses clavate at the apices.

Peziza brunneo-atra—Desm., "Crypt. Fr.," i. 826;

"Ann. Sc. Nat.," 1836, iii. 244; B. and Br., "Ann. Nat. Hist.," No. 1157, t. 4, f. 18; Cooke, "Handbk.," No. 2006; "Mycogr.," fig. 78. *Aleuria brunneo-atra*—Gill., "Champ.," p. 53, c. i.

Exs.—Desm., "Crypt. Fr.," i. 826, ii. 26.

On the ground. Spring.

Name—*Brunneus*, deep brown, and *ater*, black.

Leigh Woods, near Bristol! (Mr. C. E. Broome and Mr. Spencer Perceval).

B. SPORIDIA ELLIPTIC, SMOOTH.

46. *Peziza purpurascens.* Pers.

Cup sessile, campanulate, then expanded, conically attenuated to the base, livid-purple, glabrous; asci cylindrical; sporidia 8, elongate-elliptic, biguttulate, smooth, 20—22 × 7·5μ; paraphyses filiform, thickened upwards.

Peziza purpurascens—Pers., "Myco. Eur.," p. 242, t. 12, f. 10; Fries, "Sys. Myco.," ii. 65; Gonn. and Rabh., "Myco. Eur.," t. 3, f. 3; Cooke, "Grevillea," v. p. 60; "Mycogr.," fig. 276. *Aleuria purpurascens*—Gill., "Champ.," p. 48, c. i.

Exs.—Cooke, "Fung. Brit.," ii. 543.

On the ground. Autumn.

Cup ½ to 1 inch broad. The sporidia are fusiform.

Name—*Purpuracens*, inclining to purple.

Shrewsbury! King's Lynn! (Mr. C. B. Plowright).

47. *Peziza tectoria.* Cooke.

Cup sessile or substipitate, globose, afterwards expanded, applanate; hymenium plane, subumbilicate, pallid-ochraceous; externally whitish, furfuraceous, becoming smooth; asci cylindrical; sporidia 8, elliptic, smooth, 18—20 × 9—10μ; paraphyses filiform.

Peziza tectoria—Cooke in "Grevillea," iii. p. 119; "Mycogr.," fig. 263; Phil., "Trans. Woolhope Club," 1876, p. 224, with figure.

On damp plaster walls. Summer and autumn.

At first appearing as a small white furfuraceous ball, seated on a white mycelium, ¼ of an inch broad; when old becoming irregular, 1¾ inches broad, margin split and jagged.

Name—*Tectus*, the roof; from its habitat.

Dwelling-house, Shrewsbury! Union Workhouse, Shrewsbury! Herefordshire County Asylum! (Dr. Chapman). Edinburgh, on timber in a house that had been burnt down (Dr. M. C. Cooke). Botanical Gardens, Edinburgh; and Epping (Dr. M. C. Cooke). Marlborough (Dr. M. C. Cooke).

48. *Peziza ampliata.* Pers.

Cup sessile, fleshy, fragile, thin, expanding directly from the base, nearly cinnamon, externally pallid, nearly smooth; asci cylindrical; sporidia 8, elliptic, smooth, 18 × 19μ; paraphyses linear, slightly thickened upwards.

Peziza ampliata—Pers., "Icon. et Descr.," p. 31, t. 3, f. 4; Fries, "Sys. Myco.," ii. 76; Cooke, "Mycogr.," fig. 384. *Aleuria ampliata*—Gill., "Champ.," p. 47.

On rotting wood and bark of oak, poplar, etc. Autumn and winter.

Cup ½ an inch to 1 inch or more broad.

Name—*Amplio*, to enlarge; widened out.

Near Hereford! Guildford! (Mr. Thomas Howse). Cawdor Castle, N.B.! Hanham Woods, near Bristol; Kew Gardens (Dr. M. C. Cooke).

49. *Peziza mellea.* Cooke and Plow.

Cup solitary, sessile, hemispherical, glabrous, becoming applanate, ochraceous; margin incurved; hymenium honey-coloured; asci cylindrical; sporidia 8, elliptic, smooth, 20 × 11μ; paraphyses slightly clavate at the apices.

Peziza mellea—Cooke and Plow., "Grevillea," v. 119; Cooke, "Mycogr.," fig. 383.

On decaying ash.

Cup about 6 lines broad; the margin of the cups

slightly elevated and curved inwards; disc honey-coloured or cream-coloured, externally darker.

Name—*Mel*, honey; from the colour.

King's Lynn (Mr. C. B. Plowright).

50. *Peziza undata*. Smith.

Cup medium size, stipitate, rooting, fleshy; hymenium slightly concave, afterwards expanded, then reflexed, generally corrugated, yellowish, buff, grey, purple, or pallid; asci cylindrical; sporidia 8, elliptic, smooth, 10 × 5μ; paraphyses stout, enlarged upwards.

Peziza undata—Smith in "Grevillea," i. p. 136, t. 10, figs. 1, 2; "Grevillea," iii. fig. 44; Cooke, "Mycogr.," fig. 279.

On stems of tree ferns. May.

Cup ½ to ¾ of an inch broad.

Name—*Unda*, a wave; waved.

Veitch's Nursery, Chelsea (Mr. W. G. Smith).

51. *Peziza sepiatra*. Cooke.

Cups sessile or substipitate, gregarious, hemispherical, soon expanded, becoming applanate; hymenium plane, umbilicate, blackish-brown, margins lightly elevated; externally umber-brown, subfurfuraceous; asci cylindrical; sporidia 8, elliptic, smooth, 20—22 × 11μ; paraphyses clavate at the apices.

Peziza sepiatra—Cooke in "Grevillea," iii. 119, fig. 135; "Mycogr.," fig. 261.

Exs.—Cooke, "Fung. Brit.," 184; Phil., "Elv. Brit.," 105.

On the ground in damp, shady places; on road-scrapings, etc. Spring.

Cup ½ an inch broad, often less, rather brittle. The margin is minutely crenulated, incurved, and paler than the disc. The cells forming the exterior of the cup are 30μ diameter.

Name—*Sepia*, a pigment, *ater*, black; brownish black.

Shelton Rough, Shrewsbury! Baschurch, Salop! Henbury Churchyard, near Bristol (Mr. Spencer Perceval).

Forres, N.B. (Rev. Dr. Keith). Epping and Highgate (Dr. M. C. Cooke).

52. *Peziza subrepanda.* Cooke and Phil.

Cups scattered or gregarious, patelliform, fleshy, pale buff; externally paler, farinaceous; margin dentate; asci cylindrical; sporidia 8, elliptic, smooth, 20 × 9μ; paraphyses filiform, scarcely thickened above.

Peziza subrepanda—Cooke and Phil., "Mycogr.," fig. 260.

On the ground, charcoal beds, etc.

Cup scarcely ½ an inch broad, very neat and delicate, pale fleshy tan colour, with a regular dentate margin.

Name—*Sub* and *repand*, bent back; somewhat bent back.

Near Shrewsbury! wood near Ludlow!

53. *Peziza sterigmatizans.* Phil.

Cup sessile, concave, becoming expanded and repand, variously contorted, black-brown; margin crenulated; asci cylindrical; sporidia 8, elliptic, smooth, 18 × 9μ; paraphyses stout, septate, apices clavate, forked, shortly branched, hyaline.

Peziza sterigmatizans—Phil., Cooke's "Mycogr.," fig. 304.

On damp ground. Autumn.

Cup scarcely an inch broad; paraphyses thick, septate, clavate at the tips, either furcate above, or with short lateral branches or bud-like processes.

Name—στήριγμα, a support; the paraphyses being like sterigmata.

On the side of a damp ditch, Shrewsbury!

54. *Peziza cribrosa.* Grev.

Cup solitary, black, concave, attenuated downward, rugulose; hymenium full of lacerated irregular pores; margin entire; asci cylindrical; sporidia 8, elliptic, hyaline, smooth, 20 × 8—9μ; paraphyses septate, clavate apices.

Peziza cribrosa—Grev., "Flo. Edin.," 423; Cooke, "Mycogr.," fig. 381. *Helotium cribrosum*—Berk., Cooke's "Handbk.," ii. 713.

On the ground in sandy or gravelly places amongst short grass. Autumn.

Large, ½ to 1 inch broad, hemispherical, at length partly spreading, but always deeply concave, wholly black, but deeper within, somewhat rugose at the base externally; margin entire, even (Grev., *l. c.*).

Name—*Cribrum*, a sieve; from the pitted hymenium.

Balmuto, near Edinburgh (Dr. Greville). Between Inverness and the west coast (Dr. Greville and Dr. Hooker in 1821).

55. *Peziza exidiiformis.* B. and Br.

Cups gregarious, orbicular, lurid purple; margin elevated, inflexed; hymenium cribrose; stem incrassated upwards; asci cylindrical; sporidia 8, broadly elliptic, biguttulate, smooth, 17 × 10μ; paraphyses subclavate at the apices.

Peziza exidiiformis—B. and Br., "Ann. Nat. Hist.," No. 1480; "Grevillea," iii. 120; Cooke, "Mycogr.," fig. 60.

On silver sand and rotten wood. March.

Cup 2 lines or more wide; contracting very much when dry.

Name—*Exidia*, a genus of fungi, *forma*, form; from its likeness to an *Exidia*.

Cork (Mr. D. Saunders). Stannage Park, Radnorshire (Mr. C. E. Broome). Glamis, N.B. (Rev. J. Stevenson).

56. *Peziza violacea.* Pers.

Cups gregarious, fleshy, glabrous, at first globose, then campanulate, purplish blue, orbicular, regular, with a thick stem-like base; margin spreading, entire, subrepand; externally pallid, whitish at the base; asci cylindrical; sporidia 8, elliptic, smooth, 12—14 × 7—9μ; paraphyses slightly clavate at the apices.

Peziza violacea—Pers., "Syn. Fung.," p. 639; Fries,

"Syn. Myco.," ii. 65; Karst., "Mon. Pez.," p. 116; Karst., "Myco. Fenn.," 57; Nyl., "Pez. Fenn.," 14; Gonn. and Rabh., "Myco. Eur.," iii. t. 3, f. 2; "Grevillea," iii. fig. 34; Cooke, "Mycogr.," fig. 278. *Aleuria violacea*—Gill., "Champ.," p. 47.

Exs.—Karst., "Fung. Fenn.," 455.

On the ground. May to October.

Cups about 3 lines broad.

Name—*Violaceus*, of a violet colour.

Monkstown, Dublin! (Mr. Greenwood Pim).

57. *Peziza viridaria.* B. and Br.

Cup sessile, globose, then hemispherical, at length expanded, watery-grey; externally rough with brown furfuraceous particles; asci cylindrical; sporidia 8, broadly elliptic, smooth, 12 × 6·5μ; paraphyses clavate at the apices, and filled with browr granules.

Peziza viridaria—B. and Br., "Ann. Nat. Hist.," No. 555; Berk., "Outl.," 364; Cooke, "Handbk.," No. 1988; Cooke, "Mycogr.," fig. 262.

On damp walls and water-butts. Autumn and winter.

Cup $\frac{1}{4}$ to $\frac{1}{2}$ an inch broad, pale watery-brown, or cinereous, sessile, springing from a white cottony effused stratum.

Name—*Viridarium*, a greenhouse; from its habitat.

Wall of a greenhouse, King's Cliffe (Rev. M. J. Berkeley). Clifton, near Bristol! (Mr. Cedric Bucknall).

Subgenus IX.—Humaria.

Cups sessile, entire, hemispherical, then flattened, rather thick, fleshy, mostly highly coloured. (Plates IV. V. figs. 19–22.)

Name—*Humus*, moist earth; from the usual habitat.

Arrangement of the Species.

A. Sporidia globose.

(*a*) Epispore reticulated.. .. .. species 58-59

(*b*) Epispore spinulose .. .. .. „ 60

(*c*) Epispore echinulate .. .. .. species 61
(*d*) Epispore smooth .. .. .. „ 62-65

B. Sporidia elliptic.
(*a*) Epispore asperate .. .. .. „ 66-69
(*b*) Epispore smooth .. .. .. „ 70-92

C. Sporidia subfusiform.
(*a*) Epispore smooth .. .. .. „ 93-97

KEY TO THE SPECIES.

	Sporidia globose	1°
	Sporidia elliptic	4
	Sporidia fusiform	14
1.	Sporidia rough	2
	Sporidia smooth	3
	Sporidia reticulated ; margin of cup white.. ..	*Crouani.*
2.	Sporidia reticulated ; margin same colour as disc..	*lætirubra.*
	Sporidia spinulose	*asperior.*
	Sporidia warted	*Wrightii.*
	Hymenium yellowish-vermilion; margin crenulate	*Polytrichi.*
3.	Hymenium vermilion ; margin entire	*constellatio.*
	Hymenium violet	*violacens.*
	Hymenium brown	*schizospora.*
4.	Sporidia rough	5
	Sporidia smooth	6
	Hymenium vinous-brown ; cup sessile ; paraphyses purple	*Phillipsii.*
5.	Hymenium red-brown; cup substipitate; paraphyses orange-red	*vivida.*
	Hymenium orange-red ; cup externally pallid ..	*rutilans.*
	Hymenium orange-red ; cup externally pale brown	*Chateri.*
	Hymenium flesh-red	*maurilabra.*
	Hymenium dull salmon-colour	*Keithii.*
	Hymenium bright salmon-colour	*salmonicolor.*
6.	Hymenium scarlet	7
	Hymenium yellow	9
	Hymenium brown	12
	Hymenium green	*Jungermannix.*
	Margin fimbriate ; paraphyses branched, yellow ..	*axillaris.*
7.	Margin fimbriate ; paraphyses branched, orange-red	*leucoloma.*
	Margin fimbriate; paraphyses unbranched, yellow	*pilifera.*
	Margin entire	8
	Exterior of cup brown ; hymenium orange-red ..	*macrocystis.*
8.	Exterior of cup pale, subfribillose	*Sowerbei.*
	Exterior of cup blood-red, glabrous	*humosa.*
	Margin of cup obtuse, glabrous	*convexula.*
9.	Margin of cup ciliated with white deciduous hairs	*ascoboloides.*
	Margin of cup granular	10
	Margin of cup crenulate	11
	Paraphyses linear, curved; exterior of cup dark brown	*xanthomela.*
10.	Paraphyses clavate, straight; exterior of cup yellowish-brown	*granulata.*

11.	Paraphyses clavate, branched; exterior of cup dark brown	*lechethina.*
	Paraphyses linear, not branched: exterior of cup pale ochre	*semi-immersa.*
	Paraphyses linear, not branched; exterior of cup orange-yellow	*glumarum.*
12.	Margin of cup dentate; paraphyses clavate, brown	*hepatica.*
	Margin of cup granular; paraphyses linear	*cervaria.*
	Margin of cup glabrous	13
13.	Paraphyses much branched; cells of cup very small	*misturæ.*
	Paraphyses not branched, clavate, dirty yellow	*Oocardii.*
	Paraphyses not branched, clavate, brown	*depressa.*
	Paraphyses absent; cells of cup very large	*bovina.*
14.	Paraphyses linear, curved; cups hemispherical, scattered	*corallina.*
	Paraphyses linear, curved; cups turbinate, crowded	*Roumegueri.*
	Paraphyses clavate	15
15.	Externally slightly granulose	*carbonigena.*
	Externally tomentose	*fusispora.*
	Pubescent towards the margin	*ollaris.*

A. SPORIDIA GLOBOSE.

(*a*) *Epispore reticulate.*

58. *Peziza Crouani.* Cooke.

Cup scarlet, fleshy, glabrous, urceolate, becoming hemispherical; hymenium applanate; margin membranaceous, reflexed, whitish; asci cylindrical; sporidia 8, globose, reticulated, 16—18μ; paraphyses filiform, simple or forked, thickened towards the apices. (Plate IV. fig. 19.)

Peziza Crouani—Cooke in "Grevillea," iii. fig. 61; "Mycogr.," fig. 17. *Peziza Polytrichi*—Karst., "Myco. Fenn.," p. 62; Nyl., "Pez. Fenn.," p. 22. *Ascobolus Crouani*—Cooke, "Jour. Bot.," 1864, f. 3; B. and Br., "Ann. Nat. Hist.," No. 1085, t. 16, f. 26; Cooke, "Handbk.," No. 2198. *Lamprospora miniata*—De Not., "Disc.," p. 34. *Ascobolus miniatus*—Crouan, "Ann. Sc. Nat.," 1858, x. p. 197, t. 13, f. 44–47 (non Preuss); Currey "Linn. Trans.," xxiv. p. 495, t. 51, fig. 19. *Crouani minista*—Fckl., "Symb. Myco.," p. 320; Pat., p. 39, f. 96. *Aleuria Crouani*—Gill., "Champ.," p. 50, c. i.

Exs.—Cooke, "Fung. Brit.," 285, ii. 192; Fckl., "F. Rh.," 1853; Rabh., "Fung. Eur." 658 and 1624.

On the earth amongst mosses, and on the tops of walls. Spring and autumn.

Cup 3 to 5 lines broad.

Name—After M. Crouan.

Slate quarry, Wivelscombe; Ilford, Essex (Rev. M. J. Berkeley). Ascot (Mr. C. E. Broome). Shere, Surrey; Chichester; Exeter (Dr. M. C. Cooke). Clifton, near Bristol! (Mr. C. Bucknall). Garden wall, Shrewsbury! Hampstead Canal, near Birmingham (Mr. W. B. Grove).

59. *Peziza lætirubra.* Cooke.

Cups gregarious, sessile, concave, becoming applanate, entire, glabrous, marginate, cinnabarine, colour unchangeable; asci cylindrical, stipitate; sporidia 8, globose, guttulate, hyaline, epispore reticulated, 16—18μ; paraphyses filiform, filled with orange granules.

Peziza lætirubra—Cooke in "Grevillea," iii. f. 56; "Mycogr.," f. 20. *Crouania cinnabarina*—Fckl., "Symb. Myc.," App. ii. 64 (non *Peziza cinnabarina*—Schw.).

On sandy soil.

Cup $\frac{1}{2}$ to 1 line broad; epispore very faintly reticulated.

Name—*Lætus*, bright or cheerful, *ruber*, red; bright red.

Wootton Heath, near King's Lynn! (Mr. C. B. Plowright).

(*b*) *Epispore spinulose.*

60. *Peziza asperior.* Nyl.

Scattered, vermilion-tawny, applanate; externally covered with short brown hairs; asci cylindrical; sporidia 8, spherical or subspherical, epispore rough with papillæ, 20—22μ; paraphyses slightly clavate at the apices.

Peziza asperior—Nyl., "Pez. Fenn.," p. 21; Karst., "Mon. Pez.," 128; "Myco. Fenn.," p. 75 (ex. syn.); "Grevillea," iii. f. 216; Cooke, "Mycogr.," f. 51; Grove's "Jour. Bot.," 1885, p. 133.

Exs.—Rehm, "Asco.," No. 3.

On damp earth. Autumn.

Name—*Asper*, rough; rough-spored.

Between Hampton and Berkswell, Warwickshire! (Mr. W. B. Grove).

(*c*) *Epispore echinulate.*

61. *Peziza Wrightii.* Berk. and Curtis.

Cups scattered, sessile, hemispherical, becoming plane, scarlet; externally furfuraceo-granulated; asci cylindrical; sporidia 8, subglobose, at first smooth, afterwards becoming echinulate, 10—11μ; paraphyses filiform, branched, apices clavate.

Peziza Wrightii—Berk. and Curtis, "Ann. Nat. Hist.," No. 1064, t. xv. fig. 16; Cooke, "Handbk.," No. 2002; "Grevillea," iii. t. 30, figs. 58, 62; "Mycogr.," fig. 18.

On trunks of trees covered with *Hypnum serpens.* March.

Cup ½ to 1 line broad.

Name—After Mr. C. Wright.

Bodelwyddan, Flintshire (Rev. M. J. Berkeley).

(*d*) *Epispore smooth.*

(*a*) *Hymenium vermilion.*

62. *Peziza constellatio.* B. and Br.

Cups scattered, sessile, rather fleshy, glabrous, concave, becoming applanate, vermilion, margin entire; asci cylindrical; sporidia 8, globose, smooth, 13—14μ; paraphyses linear, curved apices, filled with orange granules.

Peziza constellatio—B. and Br., "Ann. Nat. Hist.," No. 1620; Cooke, "Grevillea," iv. p. 110; "Mycogr.," fig. 81; Pat., p. 169, f. 372. *Peziza humosa*—Rehm, "Asco.," No. 4 (nec Fries). *Aleuria constellatio*—Gill., "Champ.," p. 207.

Exs.—Rehm, "Asco.," No. 4; Cooke, "Fung. Brit.," ed. ii. 652.

On the ground.

Cups ½ to 1 line broad.

Name—*Con,* together, *stella,* a star; like groups of stars.

Wrotham (Rev. M. J. Berkeley). Doward Rocks, Herefordshire! (Mr. Spencer Perceval). Cram's Hill, Glamis, N.B.! (Rev. J. Stevenson). Near Hereford!

63. *Peziza Polytrichi.* Schum.

Cup subsessile, orbicular, a little concave, cinnabarine; externally paler, clothed with fasciculate flocci; asci cylindrical; sporidia 8, globose, smooth, 11—13μ; paraphyses filiform, filled with orange-red granules.

Peziza Polytrichi—Schum., "Saell.," p. 423; "Flo. Dan.," t. 1916, f. 1; Fries, "Sys. Myco.," ii. 70 (non Karsten nec Nylander); Cooke, "Mycogr.," fig. 50. *Peziza leucoloma*—Karst., "Myco. Fenn.," 63(?). *Aleuria polytrichi*—Gill., "Champ.," p. 50.

On the ground amongst *Polytrichum.* Summer and autumn.

Cup 1½ to 3 lines broad.

Name—*Polytrichum,* a genus of mosses; from the habitat.

On *Tortula rigida,* on a wall, Buckingham! (Mr. E. M. Holmes).

(β) *Hymenium red, becoming brown.*

64. *Peziza schizospora.* Phil.

Cups gregarious, sessile, urceolate, then applanate, red, becoming brown, externally pruinose; asci cylindrical; sporidia 8, globose, guttulate, smooth, 12μ; paraphyses filiform, summits clavate, filled with red granules.

Peziza schizospora—Phil. in "Grevillea," iii. fig. 59; Cooke, "Mycogr.," fig. 80.

On burnt sandy soil. Autumn.

Cup 2 to 3 lines broad. The nucleus of the sporidia becomes free when the epispore is ruptured. The external cells of the cup differ from those of *P. hinnulea* (B. and Br.), and it has not any short hairs as that species has.

Name—$\sigma\chi\acute{\iota}\zeta\omega$, to cleave, $\sigma\pi o\rho\acute{\alpha}$, a seed; from the splitting of the epispore.

Wrekin, Salop!

(γ) *Hymenium violet.*

65. *Peziza violascens.* Cooke.

Cup subhemispherical, brownish-violet, whitish at the base, furnished with pallid rooting fibres; hymenium violet, plane, or a little convex; asci cylindrical; sporidia 8, globose, uniguttulate, smooth, 8—9μ; paraphyses filiform, apices curved.

Peziza violascens—Cooke in "Mycogr.," fig 83. *Ascobolus Persoonii*—Crouan, "Flo. Fin.," p. 56. *Aleuria violascens*—Gill., "Champ.," p. 49; Boud., "Ascob.," p. 67.

On damp sandy ground amongst moss.

Cup 2½ to 3 lines broad, fleshy, glabrous, margin entire.

Name—*Viola*, a violet; approaching a violet colour.

Shelton Rough, near Shrewsbury!

B. SPORIDIA ELLIPTIC.

(*a*) *Epispore asperate.*

(*a*) *Hymenium reddish-brown.*

66. *Peziza vivida.* Nyl.

Cups substipitate, gregarious or scattered, fleshy, cup-shaped, rather deeply excavated, reddish-brown, externally paler, flocculose; margin entire, acute; asci cylindraceo-clavate; sporidia 8, elliptic, very minutely granulate, 23 × 12μ; paraphyses septate, apices clavate, filled with red granules.

Peziza vivida—Nyl. in "Flora," 1865, p. 476; "Pez. Fenn.," p. 22; Gonn. and Rabh., "Myco. Eur.," iii. t. 4, f. 3; "Grevillea," iii. p. 120, fig. 80; Cooke, "Mycogr.," fig. 53. *Peziza Polytrichi*—Rabh., "Herb. Myco.," ii. p. 310. *Aleuria vivida*—Gill., "Champ.," p. 54.

Exs.—Rabh., "Herb. Myco.," ii. 310.

Amongst moss.

Cup 2½ lines broad. When detached from the moss and soil, the base is often extended into a stem.

Name—*Vividus*, lively; from the lively colour.

Wiltshire (Mr. C. E. Broome). Rannoch, N.B. (Dr. Buchanan White).

(β) *Hymenium orange-yellow.*

67. *Peziza rutilans.* Fries.

Cups sessile or substipitate, gregarious, campanulate, then expanded; hymenium orange-yellow, externally paler, slightly pubescent; asci cylindrical; sporidia 8, elliptic, very minutely granulated, 26 × 11μ; paraphyses septate, apices clavate, filled with red granules. (Plate IV. fig. 20.)

Peziza rutilans—Fries, "Sys. Myco.," ii. 68; Cooke, "Handbk.," No. 1994; "Grevillea," iii. fig. 74; "Mycogr.," fig. 57; Karst., "Myco. Fenn.," p. 45. *Aleuria rutilans*—Gill., "Champ.," p. 53, c. i.

Exs.—Cooke, "Fung. Brit.," 475, ii. 188; Fckl., "F. Rh.," 1222; Phil., "Elv. Brit.," 15; Roumg., "Fung. Gal.," 774.

On the ground amongst moss. Autumn.

Cup ¼ to ½ an inch broad.

Name—*Rutilo*, to be reddish.

Hanham, Chislehurst, Blackheath (Rev. M. J. Berkeley). Epping (Dr. M. C. Cooke). Lynwilg, N.B. (Rev. Dr. Keith). Wrekin and Haughmond Hills, Shrewsbury!

(γ) *Hymenium orange-red.*

68. *Peziza Chateri.* Smith.

Cup sessile, concave, afterwards expanded; hymenium orange-red; externally pale brown; margin incurved; asci cylindrical; sporidia 8, elliptic, biguttulate, asperate, 12 × 5μ; paraphyses thickened towards the apices.

Peziza Chateri—W. G. Smith in *Gard. Chron.*, 1872, p. 9, with figure; "Jour. Bot.," 1872, p. 86; "Grevillea," i. p. 120, t. 8, figs. 1, 2, vol. iii. fig. 68; "Mycogr.," fig. 62.

Exs.—Rabh., "Fung. Eur.," 1517.

On the ground.

Cup ⅛ to 6 lines broad, composed of clavate, pale brown, septate cells, whose tips give a granulated appearance to the outer surface, which is without hairs (Smith, *l. c.*).

Name—After Mr. J. J. Chater.

On road-earth, Cambridge (Mr. J. J. Chater). Whitcliffe Bay, Isle of Wight! (Mr. T. Howse).

(δ) *Hymenium vinous-black.*

69. *Peziza Phillipsii.* Cooke.

Cups sessile, scattered, fleshy, cupulate, afterwards expanded, externally fuliginous, rough with granules; hymenium vinous-black, plane; margin sometimes crenulate; asci cylindrical; sporidia 8, elliptic, attenuated at each end, verrucose, 25 × 11μ; paraphyses septate, apices clavate, purple.

Peziza Phillipsii—Cooke in "Mycogr.," fig. 88. *Ascobolus amethystinus*—Phil. (in part), "Grevillea," iv. p. 84.

On damp sandy ground. October.

Cup 2 to 4 lines broad. Found mixed with *Ascobolus amethystinus* (Phil.). It differs from that species in the deeper vinous disc; in the intense amethystine colour of the gelatina-hymenia; the cylindrical and longer indehiscent asci; larger and more fusiform sporidia, which are more coarsely warted, and never coloured; in the shorter paraphyses, and other points, so that there is not the slightest ground for the supposition that one is any form or condition of the other, except in their growing together (Cooke, *l. c.*).

Name—After W. Phillips.

Near Shrewsbury!

(*b*) *Epispore smooth.*

(*a*) *Hymenium some shade of red.*

70. *Peziza macrocystis.* Cooke.

Cups sessile, gregarious or scattered, cup-shaped, at length applanate; hymenium concave, orange-red; margin entire, elevated; externally brown, glabrous, or slightly granulose; asci cylindrical; sporidia 8, oblongo-elliptic, biguttulate, smooth, 20 × 9μ; paraphyses clavate apices, filled with orange granules.

Peziza macrocystis—Cooke in "Mycogr.," fig. 63. *Peziza subhirsuta*, var. *macrocystis*—Cooke in "Grevillea," i. 129.

Exs.—Phil., "Elv. Brit.," 59; Cooke, "Fung. Brit.," ed. ii. 651.

On burnt ground. Autumn.

Cup 1 to 2 lines broad.

The external cells of the cup are very large. It is otherwise very near *P. subhirsuta.*

Name—μακρος, large, κύστις, a bladder; from the large cells of the receptacle.

Ercall Hill, Wellington, Salop!

71. *Peziza leucoloma.* Hedw.

Cups sessile, scattered, concave, then plane, red; margin minutely fimbriate with white flocci; asci cylindrical; sporidia 8, elliptic, biguttulate, smooth, 18—20 × 9—10μ; paraphyses clavate at the apices.

Peziza leucoloma—Hedw., "Mus. Frond.," t. 4, fig. A; Rebent., p. 386; Fries, "Sys. Myco.," ii. 71; "Eng. Flo.," v. p. 191; B. and Br., "Ann. Nat. Hist.," No. 1156*, t. 3, f. 16, No. 768; Cooke, "Handbk.," 2000; "Grevillea," iii. fig. 72; "Mycogr.," fig. 28. *Leucoloma Hedwigii*—Fckl., "Symb. Myco.," 317. *Aleuria leucoloma*—Gill., "Champ.," p. 56.

Exs.—Fckl., "F. Rh.," 1219.

On the ground amongst moss. Autumn.

Cup 1 to 1½ lines broad.

Name—λευκός, white, λῶμα, a border; white-margined.

Northamptonshire (Rev. M. J. Berkeley). Near Bristol (Mr. H. O. Stephens). Shere, Surrey (Dr. Capron). Bathford, near Bath (Mr. C. E. Broome).

72. *Peziza humosa.* Fries.

Cup sessile, fleshy, between concave and plane, glabrous, blood-red; margin entire; asci cylindrical; sporidia 8, broadly elliptic, smooth, 22—24 × 10—12μ; paraphyses somewhat branched, apices clavate.

Peziza humosa—Fries, "Obs. Myco.," p. 309; Fries, "Sys. Myco.," ii. 71; "Eng. Flo.," v. p. 191; Cooke, "Handbk.," 2001; "Grevillea," iii. fig. 71 (not Fckl., "F. Rh.," 2290); B. and Br., "Ann. Nat. Hist.," 1156*, t. 3, f. 15; Cooke, "Mycogr.," fig. 25. *Aleuria humosa*—Gill., "Champ.," p. 56, c. i.

Exs.—Cooke, "Fung. Brit.," i. 475; Rabh., "Fung. Eur.," 715.

On the naked ground. Autumn.

Cup 1 to 2 lines broad.

Name—*Humus*, moist earth; from the habitat.

Bowood; Hanham; Ascot; Shere (Rev. M. J. Berkeley). Near Hereford (Dr. M. C. Cooke). King's Lynn (Mr. C. B. Plowright). Glamis! (Rev. J. Stevenson). Epping (Dr. M. C. Cooke). Pulborough! (Mr. Spencer Perceval).

73. *Peziza Sowerbei.* Cooke.

Cups substipitate, scattered, orange-red, externally paler, sub-fibrillose; stem short, attenuated downwards; asci cylindrical; sporidia 8, elliptic, smooth, 8—9 × 4μ. paraphyses (?).

Peziza araneosa—Sow., "Fung.," t. 365, fig. 5; "Grevillea," iii. fig. 64; Cooke, "Mycogr.," fig. 55.

Exs.—Rabh., "Fung. Eur.," 30.

On bark and wood amongst moss.

Cups 2½ lines broad.

Name—After Jas. Sowerby.

Batheaston (Mr. C. E. Broome).

74. *Peziza axillaris.* Nees.

Cup sessile, firm, fleshy, cupulate, orange, paler at the base; margin obtuse; asci cylindrical; sporidia 8, elliptic, smooth, 12 × 5—6μ; paraphyses linear, slightly incrassated upwards, filled with red granules.

Peziza axillaris—Nees, "Sys.," p. 258, fig. 267; Fries, "Sys. Myco.," ii. 145; Pers., "Myco. Eur.," 514; Cooke, "Mycogr.," fig. 91. *Leucoloma axillaris*—Fckl., "Symb. Myco.," p. 318.

Exs.—Fckl., "F. Rh.," 1176.

On mosses. Spring.

Cup 1 to 2 mm. broad.

Name—*Axilla*, the armpit; growing in the axil of a moss.

Scotland, 3000 feet above the sea (Rev. J. Stevenson). Clova (Mr. Gardner). Invercauld (Mr. C. E. Broome). Broemar (Mr. C. E. Broome). Rannock (Dr. B. White).

75. *Peziza pilifera.* Cooke.

Cups scattered, sessile, hemispherical, becoming applanate, orange-red; externally clothed with evanescent web-like filaments; margin connivent or erect, irregularly fimbriately cleft, pallid; hymenium plane or a little concave, orange-red; asci cylindrical; sporidia 8, elliptic, smooth, 20 × 9μ; paraphyses filiform, obscurely septate, sometimes branched, apices sub-clavate.

Peziza pilifera—Cooke in "Mycogr.," fig. 92. *Leucoloma ascoboloides*—Rehm, "Asco.," 54; Winter in "Flora," 1873 (not *Peziza ascoboloides*—Mont.; nor De Notaris; nor *Peziza ascoboloides*—Schw.).

Exs.—Rehm, "Asco.," 54.

On the ground. Spring.

Cup about $\frac{1}{2}$ a line or more broad.

The external hairs are so delicate and evanescent that they are seldom to be found on the dried specimens, and seem to be of the same character as the delicate filaments at the base of *Peziza omphalodes*; not to be

compared with the tomentose species of *Sarcoscypha* (Cooke).

Name—*Pilus*, hair, *fera*, to bear; clothed with hairs.

Whitfield, Herefordshire!

76. *Peziza maurilabra.* Cooke.

Cup sessile, fleshy, concave, margin becoming crisped, crenulate; externally blackish-brown, rivulose; hymenium flesh-red or almost orange; asci cylindrical; sporidia 8, elliptic, biguttulate, smooth, 17—20 × 7—9μ; paraphyses clavate, orange, sometimes forked.

Peziza maurilabra—Cooke, "Grevillea," vi. 64; "Mycogr.," fig. 388. *Peziza rivulosa*—Quelet, in litt. *Aleuria maurilabra*—Gill., "Champ.," p. 54, c. i.

On chips and on the ground.

Cups 1 to 2½ lines broad.

This somewhat resembles *P. melaloma* (A. and S.), but the external cells and margin are distinctly different (Cooke).

The crenulations of the margin are produced by projecting bundles of brown, adherent, septate, hair-like cells.

Name—*Maurus*, a Moor, *labrum*, a lip; black-lipped.

Crane's Hill, Glamis, N.B. (Rev. J. Stevenson).

77. *Peziza granulata.* Bull.

Cups sessile, scattered or crowded, at first spherical, then expanded, ultimately almost plane, margin thick; hymenium orange-red; externally fulvous orange, coarsely granular; asci cylindrical; sporidia 8, elliptic, smooth, 20 × 10μ; paraphyses linear, apices clavate, filled with orange-red granules.

Peziza granulata—Bull., "Champ.," p. 258, t. 438, fig. 3; Fries, "Sys. Myco.," ii. 67; Karst., "Myco. Fenn.," p. 47; "Eng. Flo.," v. p. 190. Cooke, "Handbk.," 2005; "Mycogr.," fig. 59. *Peziza scabra*—"Flo. Dan.," t. 655. f. 2. *Ascobolus granulatus*—Fckl., "Symb. Myco.," 287, *Aleuria granulata*—Gill., "Champ.," p. 56.

Exs.—Desm., "Crypt. Fr.," i. 270; Rabh., "Fung. Eur.,"

724; Phil., "Elv. Brit.," 16; Karst., "Fung. Fenn.," 255; Fckl., "F. Rh.," 1876; Thum., "Mycoth. Univ.," 123; Rav., "Fung. Am.," 630; Cooke, "Fung. Brit.," ed. ii. 648.

On cow-dung. Autumn and winter.

Cup 1 to 2 lines or more broad.

This is one of our commonest species, which by its habitat and granular exterior is easily recognized.

Name—*Granus*, a grain; from its granulated exterior.

Universally distributed.

(β) *Hymenium ochraceous.*

78. *Peziza convexula.* Pers.

Cup immersed, plane, then convex, sub-immarginate, glabrous, ochraceous flesh-colour; asci cylindrical; sporidia 8, elliptic, biguttulate, smooth, 22 × 11μ; paraphyses septate, apices clavate.

Peziza convexula—Pers., "Obs.," p. 85; "Grevillea," iii. fig. 81; Fries, "Sys. Myco.," ii. 74; Cooke, "Mycogr.," fig. 36. *Leucoloma convexula*—Fckl., "Symb. Myco.," p. 318. *Peziza chrysopthalma*—Gerard in "Bullet. Torr. Club," vol. iv. No. 12. *Aleuria convexula*—Gill., "Champ.," p. 55, c. i.

Exs.—Fckl., "F. Rh.," 1875.

On naked soil and amongst moss. Spring and autumn.

Cup 1 line broad.

Name—*Convexus*, convex; slightly convex.

Crane's Hill, Glamis (Rev. J. Stevenson).

79. *Peziza semi-immersa.* Karst.

Peziza somewhat gregarious, sessile, immersed in the ground, at first subglobose, soon hemispherical, at length expanded, applanate, very slightly pubescent or glabrous; margin unequally crenulate; pale ochraceous, or between testaceous and flesh-colour; hymenium deeper colour; asci cylindraceo-clavate; sporidia 8, elliptic, 1 to 2-guttulate, smooth, 16—24 × 9—11μ; paraphyses filiform, septate, apices curved.

Peziza semi-immersa—Karst., "Mon. Pez.," 117;

"Myco. Fenn.," p. 45; "Grevillea," iii. fig. 75; "Mycogr.," fig. 46.

On the naked ground damp, and of a sandy nature. September.

Cup ½ to 2½ lines broad.

Very much the colour of the soil, and buried half-way in the ground. The disc is more decidedly flesh-colour.

Name—*Semi*, half, *immersus*, immersed; half buried in the soil.

Shelton Rough, Shrewsbury!

(γ) *Hymenium bright yellow.*

80. *Peziza ascoboloides.* Bert.

Cups scattered or gregarious, sessile, concave, orange-yellow; hymenium same colour, papillate, granular; margin furnished with white deciduous cilia; asci cylindrical; sporidia 8, elliptic, smooth, 18 × 10μ; paraphyses linear, apices clavate.

Peziza ascoboloides—Bert. in Mont., "Syll.," p. 185; "Flo. Chil.," vii. p. 402; Cooke, "Mycogr.," fig. 352. *Peziza eclecta*—B. and Cooke in "Grevillea," 1876, v. p. 60.

On the ground.

Cup 1 to 1½ lines broad. The few scattered hyaline septate hairs on the surface of the cups are evanescent.

Name—*Ascobolus*, a genus of fungi, εἶδος, likeness; resembling an *Ascobolus*.

Sibbertoft, Market Harborough (Rev. M. J. Berkeley). Shrewsbury!

81. *Peziza lechithina.* Cooke.

Cups gregarious, sessile, egg-yellow, hemispherical, then applanate, becoming convex, margin narrow, distinct, crisped; asci cylindrical; sporidia 8, elliptic, smooth, 25 × 12μ; paraphyses septate, apices clavate, filled with orange granules.

Peziza lechithina—Cooke in "Grevillea," iv. p. 110; "Mycogr.," fig. 89.

On old trunks crossing a stream. Autumn.

Cup 2½ lines broad.

It can at once be recognized as wholly different from anything previously described. The cups were grouped on a spot five or six inches in length and two or three inches broad, on a decorticated trunk, saturated with water, in contiguity to *Peziza scutellata* (Dr. Cooke).

Name—λεκίθος, the yolk of an egg; from its colour.

Forden, Montgomeryshire (Dr. M. C. Cooke).

82. *Peziza glumarum.* Desm.

Cups crowded, sessile, when young conical, globose, covered with white flocci, becoming concave or nearly plane, glabrous, flexuose, orange-yellow; margin nearly lacerated, white; asci cylindrical; sporidia 8, elliptic, smooth, 18 × 10μ; paraphyses linear.

Peziza glumarum—Desm., "Ann. Sc. Nat.," 1841, xv. p. 129; "Grevillea," iii. fig. 77; Cooke, "Mycogr.," 39. *Aleuria glumarum*—Gill., "Champ.," p. 55.

Exs.—Desm., "Crypt. Fr.," 1054, ii. 454; Rabh., "Fung. Eur.," 2967.

On chaff. Spring.

Cup 2 to 5 lines broad.

Name—*Gluma*, chaff; from its habitat.

Batheaston, near Bath (Mr. C. E. Broome). Cliffe Pypard, Wilts (Mr. C. E. Broome).

83. *Peziza xanthomela.* Pers.

Cups gregarious, sessile, somewhat difformed; hymenium subconvex, lutescent; externally blackish brown; asci cylindrical; sporidia 8, elliptic or oblongo-elliptic, smooth, 11—12 × 6μ; paraphyses filiform, very slender, apices curved.

Peziza xanthomela—Pers., "Syn. Fung.," p. 665; Fries, "Sys. Myco.," ii. 74; "Grevillea," iii. fig. 86; Cooke, "Mycogr.," 41. *Aleuria xanthomela*—Gill., "Champ.," p. 207.

Exs.—Rabh., "Fung. Eur.," 315.

On the ground in pine woods, and on dead larch-wood. Autumn.

Cup 1 to 2½ lines broad.
Name—ξανθός, yellow, μελάς, black; yellow-black.
Forres, N.B.! (Rev. Dr. Keith).

(δ) *Hymenium salmon-colour.*

84. *Peziza salmonicolor.* B. and Br.

Cups small, gregarious, hemispherical, becoming applanate, glabrous, salmon-colour within and without; asci cylindraceo-clavate; sporidia 8, elliptic, eguttulate, 20—22 × 12μ; paraphyses linear, apices scarcely enlarged upwards.

Peziza salmonicolor—B. and Br., "Ann. Nat. Hist.," 1158, t. iv. f. 19; Cooke, "Handbk.," No. 2007.; "Grevillea," iii. fig. 202; "Mycogr.," fig. 48.

On the sides of a ditch. October.
Cup ½ to 1½ lines broad.
Name—*Salmo*, a salmon, *color*, colour.
Wood Newton (Rev. M. J. Berkeley).

85. *Peziza Keithii.* Phil.

Cups minute, gregarious or crowded, sessile, fleshy, turbinate, then expanded, dull salmon-colour, glabrous; hymenium nearly plane, margin obtuse; asci cylindraceo-clavate; sporidia 8, oblongo-elliptic, smooth, 15—18 × 7μ; paraphyses scarce or none.

Peziza Keithii—Phil. in "Myco. Scot.," p. 308.

On horse-dung. September.

This species has an outline much commoner amongst the *Ascoboli* than the *Peziza*, being thick and fleshy, the hymenium only slightly depressed, the plant forming a flattened sphere.

Name—After the Rev. Dr. Keith.
Forres, N.B.! (Rev. Dr. Keith).

(ε) *Hymenium brown.*

86. *Peziza Oocardii.* (Kalch.)

Cups scattered or gregarious, sessile, orbicular, slightly scabrous, pallid-brown or rufus-brown, when dry be-

coming blackish; hymenium somewhat convex or plane, collapsing when dry; asci cylindrical; sporidia 8, broadly elliptic, smooth, 20—22 × 11—12μ; paraphyses septate, apices clavate.

Peziza Oocardii—"Grevillea," iii. fig. 207; Cooke, "Mycogr.," fig. 47. *Peltidium Oocardii*—Kalch. in Rabh., "Fung. Eur.," 521; Karst., "Myco. Fenn.," p. 84; "Scott. Nat.," i. (new ser.) 861.

Exs.—Rabh., "Fung. Eur.," 521; Karst., "Fung. Fenn.," 636 (var.).

On stones and (var. *liquiaria*—Karst.) on putrid pine-wood.

Cup 1½ to 2½ lines broad.

Name—From *Oocardium*, a genus of fresh-water *algæ*, on one of the species of which it was found growing.

Forres, N.B.! (Rev. Dr. Keith).

87. *Peziza hepatica.* Batsch.

Cups gregarious, sessile, concave, vinous-brown, externally granulated; margin triangular-dentate; asci cylindrical; sporidia 8, elliptic, smooth, 26—28 × 12μ; paraphyses septate, apices slightly thickened.

Peziza hepatica—Batsch, f. 138; B. and Br., "Ann. Nat. Hist.," 1069, t. 15, f. 19; Cooke, "Handbk.," 2104; "Mycogr.," fig. 85; Pat., f. 211, f. 485 (?). *Aleuria hepatica*, Gill., "Champ.," p. 208.

Exs.—Cooke, "Fung. Brit.," i. 567, ii. 191; Rabh., "Fung. Eur.," 612; Phil., "Elv. Brit.," 81.

On the ground and rabbit-dung. January to April.

Cup 1 to 2 lines broad.

When young subglobose and closed, then concave and flattened, 1 to 2 lines broad, of a watery consistence; paraphyses septate, the joints more or less swollen or inflated; asci linear; sporidia elliptic, uniseriate, hyaline, even, ·001 × ·0005 in. (B. and Br.).

Name—ἧπαρ, liver; from its liver-colour.

Bowwood, Bathford Down, Wilts (Mr. C. E. Broome). Wrekin, Salop!

88. *Peziza misturæ.* Phil.

Cups crowded or scattered, sessile, concave when dry, applanate when moist, submarginate, chestnut-brown, glabrous; asci cylindraceo-clavate; sporidia 8, broadly elliptic, or subglobose, uniguttulate, smooth, 14—16 × 11μ; paraphyses 1 to 6 times branched, apices pyriform, or sometimes nearly moniliform or linear.

Peziza misturæ—Phil. in *Gard. Chron.*, fig. 58, Sept. 4, 1880.

On a mixture of lime and cow-dung spread on the trunks of apple-trees. Spring.

Cup ¼ to 1½ lines broad.

The cells forming the exterior of the cup are narrowly cylindrical and parallel; the paraphyses are remarkable from their habit of branching frequently, and from their pyriform or moniliform summits, which characters distinguish it from *P. exidiiformis*, to which it has a slight resemblance.

Name—*Mistura*, a mixture; from its habitat.

Clifton, near Bristol! (Mr. Cedric Bucknall).

89. *Peziza cervaria.* Phil.

Cups gregarious or crowded, sessile, thick in the centre, thin at the crenulate margin, glabrous, chestnut-brown; hymenium concave, waved; asci cylindrical, abruptly narrowed at the base; sporidia 8, oblongo-elliptic, smooth, eguttulate, 15 × 7μ; paraphyses linear, abundant, forked at the apices.

Peziza cervaria—Phil. in Stevenson's "Myco. Scot.," p. 308.

On roedeer-dung. July to August.

Cup ½ to 2 lines broad.

This species closely resembles *P. hepatica* (Batsch), but differs in having much smaller sporidia, and slenderer paraphyses, not thickened at the apices, and forked.

Name—*Cervarius*, belonging to a hart or stag; from its habitat.

Grantown, N.B.! (Rev. Dr. Keith). Glamis, N.B. (Rev. J. Stevenson).

90. *Peziza bovina.* Phil.

Cups gregarious, sessile, with obconic base, expanded, umber-colour, glabrous; disc umbilicate, waved; margin paler; asci cylindrical; sporidia 8, oblong-elliptic, smooth, 19 × 9μ; paraphyses scarce or none.

Peziza bovina—Phil. in Stevenson's "Myco. Scot.," p. 308.

On cow-dung. August.

Cup 4 to 6 lines broad.

Exterior cells of cup very large, 70μ in diameter.

Name—*Bovina*, pertaining to an ox; from its habitat.

Grantown, N.B.! (Rev. Dr. Keith).

91. *Peziza depressa.* Phil.

Cups gregarious or crowded, sessile, applanate; hymenium convex, umber-brown, glabrous; margin scarcely elevated; asci cylindrical; sporidia 8, elliptic, smooth, biguttulate, 20 × 13μ; paraphyses linear, stout, septate, apices clavate, brown.

Peziza depressa—Phil. in Cooke's "Mycogr.," fig. 392.

On dead branches of willow, on damp ground. July.

Cup 1 to 2 lines broad. This adheres to the wood by a broadish base, and while moist the whole under side is pressed against the wood. The disc is convex; the margin acute, and a little paler. The sporidia are very variable in size and broadly elliptical. The cells of the exterior of the cup are medium size, 15 to 20μ broad.

Name—*Depressus*, pressed down; from its applanate growth.

Almond Park Pool, near Shrewsbury!

(ε) *Hymenium greenish.*

92. *Peziza jungermanniæ.* Nees.

Cups scattered, sessile, fleshy, glabrous, blackish-green, plane, margined; asci cylindraceo-clavate; sporidia 8, broadly elliptic, æruginous, smooth, 17 × 9μ; paraphyses filiform, branched, apices pyriform, æruginous.

Peziza jungermanniæ—Nees in Fries, "Sys. Myco.,"

38926

ii. 144; Cooke, "Mycogr.," fig. 87. *Pseudo-peziza jungermanniæ*—Fckl., "Symb. Myco.," p. 291. *Ascobolus jungermanniæ*—B. and Br., "Ann. Nat. Hist.," 1082, t. 16, f. 23; Gill., "Champ.," p. 138.

Exs.—Cooke, "Fung. Brit.," 652; Rabh., "Fung. Eur.," 1115.

Amongst *Jungermanniæ*.

Cup ½ to 1 line broad.

Name—*Jungermannia*, the name of a genus of *Hepaticæ*; from its habitat.

Jedburgh (A. Jerdon). Dolgelly, North Wales; Shere, Surrey (Dr. M. C. Cooke).

C. SPORIDIA SUBFUSIFORM.

(*a*) *Epispore smooth.*

93. *Peziza corallina.* Cooke.

Cup sessile, glabrous, hemispherical, externally orange-yellow; hymenium plane, scarlet; asci subclavate; sporidia 8, fusiform, biguttulate, smooth, 30—35 × 6—7μ; paraphyses linear, somewhat thickened towards the curved apices, filled with orange granules. (Plate IV. fig. 21.)

Peziza corallina—Cooke in "Grevillea," iii. f. 83; "Mycogr.," fig. 30. *Ascobolus coccineus*—Crouan, "Ann. Sc. Nat.," 1857, vii. t. 4, f. 15; "Flo. Fin.," p. 58. *Leucoloma coccinea*—Fckl., "Symb. Myco.," 318. *Aleuria corallina*—Gill., "Champ.," p. 51.

Exs.—Fckl., "F. Rh.," 1854.

On the ground amongst moss.

Cup 1 to 1½ lines broad.

Name—κοράλλιον, red coral; from the colour.

Shere, Surrey (Dr. Capron). North Wales! (Mr. B. Acton).

94. *Peziza ollaris.* Fries.

Sessile, crowded, hemispherical, then expanded, whitish pubescent towards the margin; hymenium

orange-yellow, externally paler; asci cylindrical; sporidia 8, elliptic, uniguttulate, 28—30 × 8μ; paraphyses incrassated at the apices.

Peziza ollaris—Fries, "Sys. Myco.," p. 68; "Grevillea," iii. f. 79; Cooke, "Mycogr.," f. 56; B. and Br., "Ann. Nat. Hist.," No. 1828. *Aleuria ollaris*—Gill., "Champ.," p. 51.

Exs.—Rabh., "Herb. Myco.," 423

On the ground amongst moss.

Cup 5 lines broad.

Name—*Olla*, a pot; potted, growing in garden-pots.

Glamis, N.B. (Rev. J. Stevenson). Sufton Court, Hereford; Symonds Yat, Monmouthshire (Mr. C. E. Broome).

95. *Peziza carbonigena.* Berk.

Gregarious or crowded, orange-yellow; cup umbilicate, sessile, flexuous, slightly granulose; asci cylindrical; sporidia 8, ellipsoide, narrow at the ends, 22 × 12μ; paraphyses clavate at the apices.

Peziza carbonigena—Berk. in "Flo. Tasm.," ii. 274; Cooke, "Mycogr.," fig. 29.

On burnt ground. October.

Cups 1 to 3 lines broad, rather crowded, at first hemispherical, then expanded; margin undulating. The colour of the Herefordshire specimens was more flesh-red than orange. The paraphyses were septate, and nearly torulose at the upper part, and branched. Sporidia broadly fusiform.

Whitfield, near Hereford!

96. *Peziza fusispora.* Berk.

Cups gregarious, almost crowded, sessile, hemispherical, plane or a little concave, yellow, tomentose; asci cylindrical; sporidia 8, fusiform, slightly attenuated at each end, biguttulate, smooth, 30—32 × 10μ; paraphyses linear, apices slightly thickened and filled with orange granules.

Peziza fusispora—Berk. in Hook., "Jour.," 1846, p. 5;

"Ann. Nat. Hist.," No. 1481; "Grevillea," iii. fig. 84; "Mycogr.," fig. 32.

Exs.—Rabh., "Fung. Eur.," No. 1812; Rav. "Fung. Am.," 174.

On soil mixed with charcoal, and heathy ground.

Cups 1 to 2½ lines broad. The external cells of the cup are very large.

Name—*Fusus*, a spindle; spores spindle-shaped.

Berwick (Dr. Johnstone). Menmuir (Rev. M. Anderson). New Pitsligo (Rev. J. Fergusson).

Var. *Aggregata.* Berk.

Cups gregarious, confluent, obconic, orange; base whitish tomentose; hymenium concave; asci cylindrical; sporidia 8, fusiform, eguttulate, smooth, 28—30 × 8μ; paraphyses linear, apices clavate, filled with orange granules.

Peziza aggregata—B. and Br., "Ann. Nat. Hist.," 1155; Cooke, "Handbk.," No. 1998.

On heathy ground.

Cup scarcely ¼ of a line wide.

Name—*Aggrego*, to assemble; from the confluent mode of growth.

Berwick (Dr. Johnstone).

Var. *Scotica.* Rabh.

Varying from nearly white to orange or blood-red (Steven., "Myco. Scot.," p. 305).

On heath and turfy ground. December.

97. *Peziza Roumegueri.* Karst.

Var. *Carnosissima.* Phil.

Cups crowded, sessile, extremely fleshy, poculiform, orange-yellow, glabrous; hymenium plane or very slightly concave, margin indistinct; asci cylindrical; sporidia 8, fusiform, smooth, 16—18 × 5μ; paraphyses linear, apices curved, filled with orange granules.

Peziza Roumegueri—Karst. in "Grevillea," vii. p. 64. Var. *carnosissima*—Phil. in "Grevillea," x. p. 67; "Scott. Nat.," vi. 122.

On decaying vegetable matter.

Cup ½ a line across. Much crowded; disc barely depressed, so that the cups can hardly be called cups except in outline, being fleshy to the top. They have no erect, thin, membranaceous, paler margin, as the type has, nor are the apices of the paraphyses clavate. The cells of the exterior of the cup are moderate-sized—20 to 30μ diam.

Name—*Carnosus*, fleshy; extremely fleshy.

Glamis, N.B.! (Rev. J. Stevenson).

Subgenus X.—Pyronema. Fckl.

Cups often densely gregarious, sessile, fleshy, seated upon or surrounded by a delicate, radiating, web-like, white mycelium; hymenium at length plane, subconvex or umbilicate, scarcely marginate, losing colour; sporidia 8, elliptic, smooth. (Plate IV. fig. 22.)

Growing on ashes, burnt ground, plaster walls, and damp paper.

Some of the species (*subhirsuta* and *domestica*) are, when young, clothed with delicate fugaceous hairs, forming a connecting link between *Peziza* (as here limited) and *Sarcoscypha*.

Name—$\pi\tilde{\upsilon}\rho$, fire; $\nu\acute{\epsilon}\mu\omega$, I inhabit; found in burnt places.

Arrangement of the Species.

A.	Cups glabrous from the first .. .. species	98–100
B.	Cups at first clothed with fugaceous hairs „	101–102
C.	Cups furnished with delicate short black hairs „	103
D.	Doubtful species .. .. „	104

Key to the Species.

	Margin of cup darker than hymenium, and granular	*melaloma.*
	Margin same colour as hymenium	1
1.	Paraphyses linear, very slender; hymenium brick-red	*Pegotii.*
	Paraphyses linear, stout; hymenium orange-red ..	*omphaloides.*
	Paraphyses clavate; hymenium orange-yellow ..	*subhirsuta.*
	Paraphyses subclavate; hymenium salmon-colour ..	*domestica.*
	Paraphyses unknown	2
2.	Hymenium blood-red	*hæmastigma.*
	Hymenium yellowish	*argillacea.*

A. CUPS GLABROUS FROM THE FIRST.

98. *Peziza omphalodes.* Bull.

Cups sessile, crowded, often confluent, slightly convex or plane, orange-red or orange-yellow, seated on a fugaceous white tomentum; asci subcylindrical; sporidia 8, broadly elliptic, eguttulate, smooth, 12 × 5—6μ; paraphyses filiform, stout. (Plate V. fig. 22.)

Peziza omphalodes—Bull., "Champ.," p. 264; Fries, "Sys. Myco.," ii. 73; Karst., "Mon. Pez.," 120; "Myco. Fenn.," p. 48; Cooke, "Handbk.," No. 2004; "Mycogr.," fig. 65; "Grevillea," iii. f. 50. *Pyronema omphalodes*—Fckl., "Symb. Myco.," 319. *Pyronema Marianum*—Carus, "Nov. Act. N. C.," xvii. 370. *Pyronema confluens*—Tul., "Carp.," iii. 197. *Aleuria omphalodes*—Gill., "Champ.," p. 48, c. i.

Exs.—Karst., "Fung. Fenn.," 256; Rabh., "Fung. Eur.," 267, 708; Sacc., "Myco. Ven.," 268; Desm., "Crypt. Fr.," i. 428; Fckl., "F. Rh.," 1218; Cooke, "Fung. Brit.," 326; Phil., "Elv. Brit.," 109.

On burnt ground and cinder heaps. Summer and autumn.

Cup ½ to 1 line broad. It spreads in irregular patches, often covering a considerable space of ground where charcoal has been burnt. The white mycelium is conspicuous when the growth is recent; later on traces can generally be detected round the base of the cups.

Name—*ομφαλός*, the navel, *εἶδος*, appearance; from the depressed centre.

Rockingham Forest, Northamptonshire (Rev. M. J. Berkeley). King's Cliffe. Apethorpe (Rev. M. J. Berkeley). King's Lynn! (Mr. C. B. Plowright). Bristol (Mr. Cedric Bucknall). Brédwardine, Herefordshire (Dr. M. C. Cooke). Caer Caradoc! Wrekin! Shrewsbury, in my garden! Whitcliffe, Ludlow!

99. *Peziza Piggotii.* B. and Br.

Cup hemispherical or cyathiform, slightly concave, fleshy, firm; hymenium pale brick-red, externally paler;

seated on a downy white tapesium; asci cylindrical; sporidia 8, elliptic, uniguttulate, smooth, 14—16 × 8—9μ; paraphyses filiform, slender.

Peziza Piggotii—B. and Br., "Ann. Nat. Hist.," No. 769; Cooke, "Handbk.," No. 2067.

On plaster ceilings.

Mycelium white, downy, but not spreading very widely, running up the base of the hemispherical or cyathiform cups, which are about 2 lines broad; margin generally acute (B. and Br.).

This is quite distinct from *P. domestica*, being larger and firmer in texture, and it has different sporidia.

Name—After Mr. H. Piggot.

Chelmsford (H. Piggot, Esq., in Herb. Berk.).

100. *Peziza hæmastigma.* (Hedw.)

Cups sessile, convex, immarginate, smooth, pale blood-red; asci cylindraceo-clavate, or clavate; sporidia 8, broadly elliptic, smooth, 20 × 10μ; paraphyses not seen.

Peziza hæmastigma—Fries, "Sys. Myco.," ii. 74; B. and Br., "Ann. Nat. Hist.," No. 1159, t. 4, f. 20; Sturm, xxxiii. t. 11; Cooke, "Handbk.," No. 2008; "Mycogr.," fig. 70. *Octospora hæmastigma*—Hedw., "Mus. Frond.," t. 5, f. B.

On whitewashed walls.

Cup ¼ of a line broad. Asci short, oblong, subclavate; sporidia biseriate, nearly globose.

Name—αἷμα, blood, στίγμα, a point; forming blood-like spots.

Pen-y-Gwryd, North Wales (Mr. C. E. Broome).

B. CUPS AT FIRST CLOTHED WITH SLENDER FUGACEOUS HAIRS.

101. *Peziza domestica.* Sow.

Cups sessile, gregarious, or densely crowded, at first wart-like, then conical or subcylindrical, at length cyathiform, fleshy, salmon-coloured, clothed with slender deciduous hairs, and seated on a fugaceous white tomentum;

asci cylindrical; sporidia 8, elliptic, smooth, 18 × 8μ; paraphyses filiform, numerous.

Peziza domestica—Sow., "Fung.," t. 351; "Eng. Flo.," v. p. 199; Cooke, "Handbk.," No. 2066; Phil. and Plow., "Grevillea," vi. p. 23. *Peziza pluvialis*—Cooke, "Mycogr.," fig. 90.

Exs.—Phil., "Elv. Brit.," No. 113.

On damp plaster walls and ceilings, on damp paper; also on burnt ground.

Name—*Domus*, a house; from the habitat.

Eastbourne! (Mr. C. J. Miller). King's Lynn! (Mr. C. B. Plowright). Clifton, near Bristol! (Mr. C. Bucknall). Shrewsbury! Chichester (Dr. M. C. Cooke).

Cup very minute, hardly ½ a line broad. The colour varies from reddish-brown to pale orange-flesh or salmon-colour; the hairs are very fugaceous.

Sowerby's figure represents the cups as coated with rigid brown hairs, but no such hairs are to be seen in his original specimen, which by the kindness of the Rev. M. J. Berkeley I have been permitted to examine.

102. *Peziza subhirsuta.* Schum.

Cups sessile, gregarious, nearly plane, orange-yellow, externally paler, clothed with a few white scattered, almost obsolete hairs; asci cylindrical; sporidia 8, elliptic, smooth, 18—20 × 1μ; paraphyses clavate at the apices, filled with red granules.

Peziza subhirsuta—Schum., "Flo. Dan.," t. 1787, f. 2; Fries, "Sys. Myco.," ii. p. 70; B. and Br., "Ann. Nat. Hist.," No. 1156, t. 3, f. 14; Karst., "Myco. Fenn.," p. 65; Cooke, "Handbk.," 1999; "Mycogr.," fig. 66; "Grevillea," iii. f. 52. *Pyronema subhirsutum*—Fckl., "Symb. Myco.," 320. *Aleuria subhirsuta*—Gill., "Champ.," p. 49.

Exs.—Desm., "Crypt. Fr.," i. 462; Fckl., "F. Rh.," 1220.

On the ground in damp places. Autumn.

Cup 1 to 2 lines broad.

Name—*Sub*, somewhat, *hirsutus*, hairy.

Forres! (Rev. Dr. Keith). Glamis! (Rev. J. Stevenson). Roslin, Epping, and Eastbourne (Dr. M. C. Cooke). Attingham Park, Shrewsbury!

C. MARGIN FURNISHED WITH VERY DELICATE SHORT BLACK HAIRS.

103. *Peziza melaloma.* A. and S.

Cups sessile, crowded, at first concave, then nearly plane, orbicular, or flexuose, dingy orange; margin furnished with very delicate black fasciculate hairs; asci subcylindrical; sporidia 8, elliptic, smooth, 15—18 × 10μ; paraphyses clavate at the apices.

Peziza melaloma—A. and S., "Consp.," p. 336, t. 2, f. 5; Fries, "Sys. Myco.," ii. p. 69; "Eng. Flo.," v. p. 190; B. and Br., "Ann. Nat. Hist.," No. 88; Karst., "Myco. Fenn.," p. 66; Nyl., "Pez. Fenn.," p. 16; Cooke, "Handbk.," No. 1995; "Mycogr.," fig. 67; "Grevillea," iii. p. 53; Pat., p. 122, f. 275 (?). *Pyronema melalomum*—Fckl., "Symb. Myco.," 319. *Aleuria melaloma*—Gill., "Champ.," p. 54, c. i.

Exs.—Karst., "Fung. Fenn.," 550; Rabh., "Fung. Eur.," 723; Fckl., "F. Rh.," 1221; Rehm, "Asco.," 715.

Cup 2 lines broad. The so-called "very delicate black hairs" with which the margin is furnished are, in the British form at least, merely prominent blackish brown cells, not hairs.

On the ground, especially where fire has been. Autumn.

Name—μελάς, black, λῶμα, a border; black-margined.

Coed Coch; Wraxall, Somersetshire; Ascot; Orton Longueville (Rev. M. J. Berkeley). Glamis, N.B. (Rev. J. Stevenson). Lilleshall! and Caer Caradoc, Salop! Kew Gardens! (Dr. M. C. Cooke).

D. DOUBTFUL SPECIES.

104. *Peziza argillacea.* Sow.

Sessile, yellowish, even, at first urceolate, at length cracked and torn, rooting at the base, and hairy.

Peziza argillacea—Sow., "Fung.," t. 148; Fries, "Sys. Myco.," ii. p. 66; "Eng. Flo.," v. p. 190; Cooke's "Handbk.," 1992.

On modelling clay.

Occasionally on common black modelling clay, where, to the artist, it is a troublesome intruder, it being generally necessary to work the part again to get rid of it. It is held to the clay by very fine attenuated cobweb-like fibres from the sides, as it were, to assist the little knotty root (Sowerby).

The Rev. M. J. Berkeley, in whose possession Sowerby's original specimens were, kindly gave me some of the modelling clay on which the *Peziza* had grown, but the *Peziza* had long since disappeared. On the surface of the clay, when it came into my hands, were a number of small, hard, seed-like bodies partly imbedded, around some of which was a growth of mould giving them the appearance of Sowerby's figure. I have kept the clay damp under a bell-glass for some years, but no *Peziza* has appeared.

Genus II.—Psilopezia. Berk., "Outl.," p. 373.

Indeterminate, immarginate, agglutinate; hymenium always exposed. (Plate V. fig. 23.)

The typical representative of this genus has only been found once. It resembles a *Rhizina* more than a *Peziza*, though at first included with the latter, but it has not the peculiar roots of the former. The spores differ also from those in *Rhizina*.

Two species 1-2

A. HYMENIUM MOUSE-BROWN.

1. *Psilopezia Babingtonii.* Berk.

Small, convex above, mouse-brown, fixed by the margin; beneath concave, pale watery brown, slightly rugose, with obsolete fibrils; asci cylindrical; sporidia 8,

broadly elliptic, 18—20 × 10—12μ; paraphyses linear, clavate at the apices. (Plate V. fig. 23.)

Peziza Babingtonii—Berk., "Ann. Nat. Hist.," No. 554. *Psilopezia Babingtonii*—Berk., "Outl.," p. 373; Cooke, "Handbk.," No. 2162.

On rotten wood.

Cup ½ an inch or more broad, contracting greatly in drying, irregular in outline, convex above, mouse-brown; concave beneath, and slightly wrinkled, pale watery brown, fixed by the border; asci linear; spores broadly elliptic; paraphyses linear, their apices clavate (B. and Br., *l. c.*).

Name—After the Rev. C. Babington.

Grace Dieu Wood, Leicestershire! (Rev. C. Babington).

B. HYMENIUM GREENISH-BLACK.

2. *Psilopezia myrothecioides*. B. and Br.

Sub-orbicular; margin laciniate, tomentose, pallid yellow; hymenium greenish-black; asci linear; sporidia 8, elliptic, margin pellucid, 17—19 × 10—13μ; paraphyses filiform, broadly clavate and brown at the apices.

Psilopezia myrothecioides—B. and Br., "Ann. Nat. Hist.," No. 1489, t. ii. f. 5; "Grevillea," iii. p. 122.

On *Prunus padus*.

Two to five lines broad. The asci are cylindrical, 200μ long, 17μ broad. The clavate apices of the paraphyses are 10 to 13μ broad, and brownish. The cells of the excipulum are 20 to 30μ broad.

Name—*Myrothecium*, a genus of fungi, εἶδος, likeness resembling a *Myrothecium*.

New Pitsligo (Rev. J. Fergusson).

Genus III.—Hymenoscypha. Fries.

Opening freely, naked, glabrous; cup thin, membranaceous, but sufficiently firm, supported by the slender, sub-equal stem; hymenium distinct; asci large, clavate

or cylindrical; sporidia often in two rows; texture fibroso-cellulose. (Plate V. figs. 24–27.)

Growing on twigs, fruit, and very often on stems of plants (Fries, "Sys. Myco.," ii. p. 117).

Name—*ὑμήν*, a membrane, and *σκύφος*, a cup; from the membranaceous character of the cup.

ARRANGEMENT OF THE SUBGENERA.

I.	*Sclerotinia*	1–7
II.	*Ciboria*	8–19
III.	*Trichoscypha*	20
IV.	*Cyathoidea*	21–50

KEY TO THE SUBGENERA.

	Growing from a conspicuous sclerotium	*Sclerotinia.*
	Epiphytal, having no distinct sclerotium	1
1.	Margin furnished with hair-like processes	*Trichoscypha.*
	Margin without hair-like processes	2
2.	Cups rather large, growing on dead fruit or the inflorescence of plants or twigs	*Ciboria.*
	Cups small (rarely exceeding 3 lines in height) grow-on wood, herbaceous stems, and fruit	*Cyathoidea.*

SUBGENUS I.—SCLEROTINIA. (Fckl., "Symb. Myco.," p. 330.)

Cup rather large, or rather small, long stemmed, arising from a sclerotium, more or less infundibuliform, fleshy, marginate, at length more expanded, for the most part glabrous; asci elongated, 8-spored; sporidia ovate, oblong-ellipsoid, hyaline, guttulate, continuous; paraphyses filiform (Fckl.). (Plate V. fig. 24.)

Name—*Sclerotium*, a tuberous fungus.

ARRANGEMENT OF THE SPECIES.

A.	Sporidia elliptic	species 1–2
B.	Sporidia cymbiform	„ 3–4
C.	Sporidia oblongo-fusiform	„ 5
D.	Sporidia cylindrical	„ 6–7

KEY TO THE SPECIES.

1.	Sporidia elliptic	1
	Sporidia cylindrical	4

1.	Stem slender, but not filiform	2
	Stem filiform	3
2.	Sclerotium buried in the earth, associated with *Anemone nemerosa*	*tuberosa.*
	Sclerotium on *Carex arenaria*	*Durieuana.*
	Sclerotium on *Brassica napus* and *Solanum tuberosum*	*Sclerotiorum.*
3.	Sclerotium on leaves of *Castanea*	*Candolliana.*
	Sclerotium on leaves of *Quercus* and *Trifolium* ..	*ciborioides.*
4.	Sclerotium on *Juncus*	*Curreyana.*
	Sclerotium on decayed vegetable matter	*filipes.*

A. SPORIDIA ELLIPTIC.

1. *Hymenoscypha tuberosa.* (Bull.)

Cup thin, at first pyriform, then infundibuliform, at length expanded, bright brown, margin entire; stem elongated, flexuous, more or less immersed in the earth, arising from a black difformed sclerotium; asci cylindrical; sporidia 8, elliptic, biguttulate, 15 × 7μ; paraphyses filiform, rather stout.

Peziza tuberosa—Bull., p. 266, t. 485, fig. 3; Sow., t. 63; Fries, "Sys. Myco.," ii. p. 58; Pers., "Syn. Fung.," p. 644; "Eng. Flo.," v. p. 189; Huss., ii. t. 10; Berk., "Outl.," p. 365; Price, f. 67; Cooke, "Handbk.," 1966; Karst., "Mon. Pez.," p. 130; Pat., p. 35, f. 83. *Octospora tuberosa*—Hedw., "Mus. Frond.," ii. p. 33, t. 10, f. B. *Sclerotinia tuberosa*—Fckl., "Symb. Myco.," p. 331. *Rutstroemia tuberosa*—Karst., "Myco. Fenn.," p. 105. *Phialea tuberosa*—Gill., "Champ.," p. 97, c. i.

Exs.—Desm., "Crypt. Fr.," ed. i. 1739, ed. ii. 1339; Berk., ex. 153; Rabh., "Herb. Myco.," ed. ii. 308; Karst., "Fung. Fenn.," 530; Moug. and Nest., 397; Fckl., "F. Rh.," 1235; Cooke, "Fung. Brit.," ed. i. 558, ed. ii. 183; Phil., "Elv. Brit.," 7; Rehm, "Asco.," 202; Roumg., "Stirpes," 161.

In shady woods, buried in the earth associated with *Anemone nemerosa.*

The cups are about 6 to 8 lines broad. The disc is generally darker than the exterior; the stem is usually black and fibrous below; the sporidia have a nucleus at each pole; the paraphyses are sometimes branched.

Name—*Tuber*, a tuber.; from its growing from a tuber.

Caen Wood, Hampstead (Mr. Hunter). Kensington Gravel-pits (Mr. J. L. Knapp). Bitterley, Salop (Mrs. Price). North Wootton, Norfolk! (Mr. C. B. Plowright). Bomere, near Shrewsbury!

2. *Hymenoscypha Candolleana.* (Lév.)

Cup thin, plane, smooth, becoming brownish, margin entire; stem filiform, glabrous, or villose at the base, arising from a sclerotium; asci cylindraceo-clavate; sporidia 8, elliptic, 8 × 3μ; paraphyses filiform.

Peziza Candolleana—Lév., "Ann. Sc. Nat.," Octobre, 1843, xx. p. 233, t. 7, fig. 4; B. and Br., "Ann. Nat. Hist.," No. 1723; "Grevillea," vi. p. 127. *Sclerotinia Candolleana*—Fckl., "Symb. Myco.," p. 330.

Exs.—Fckl., "F. Rh.," No. 2195.

From *Sclerotium pustula* on leaves of *Castanea.*

Cup 8 lines broad; stem about 1 inch long. It grows separately or in little fascicles of three or four; the stem is slender, filiform, naked, of rather a firm consistence, and of a deep red colour; sometimes the lower part has white hairs, but they evidently depend on excess of moisture. It is at first only a simple thread, straight or crooked; later on the summit swells—it then resembles a little pin; finally, it forms a small flat cup, reddish, with a thin, regular margin, sometimes entirely expanded, and even decurved. The hymenium is a little less coloured than the cup, and composed of very small asci, which enclose eight elliptic, simple, transparent sporidia; no paraphyses were seen. It is most closely related to *Peziza subulipes* (Bulliard), having the same colour, but from which it differs by its habitat, size, and form of cup (Lev.).

Name—After A. P. de Candolle.

Batheaston, near Bath (Mr. C. E. Broome, under a bell-glass). Whitfield, near Hereford! Shelton Rough, near Shrewsbury!

B. SPORIDIA CYMBIFORM.

3. *Hymenoscypha sclerotiorum.* (Lib.)

Cup infundibuliform, becoming plane or convex, pale brown, rather firm, glabrous, margin entire; stem slender, more or less elongated, flexuous, of the same colour, arising from a black sclerotium; asci cylindraceo-clavate; sporidia 8, broadly elliptic, sometimes unequal-sided, biguttulate, 9—13 × 5μ; paraphyses filiform, more or less enlarged upwards.

Peziza sclerotiorum—Lib., exs. 326; Brefeld, "Schim.," heft. iv. c. i.; Cooke, "Grevillea," xii. p. 44. *P. Sclerotii*—Fckl., "Bot. Ztg.," 1861, No. 35, with figure. *Sclerotinia Libertiana*—Fckl., "Symb. Myco.," p. 331. *Peziza postuma*—Berk. and Wilson, *Gard. Chron.*, Sept., 1883. Smith's "Diseases," p. 45, with figures. *Phialea sclerotiorum*—Gill., "Champ.," p. 98, c. i. (sporidia bad).

Exs.—Lib., "Crypt. Ard.," 326; Fckl., "F. Rh.," 1861.

On *Sclerotium compactum* on *Brassica napus*, and *S. varium* on potato-stalks.

Cup ½ to 2 lines broad; stem very variable in length according to the conditions under which it grows.

On *Sclerotium compactum* in Herb. Berk.

Name—*Sclerotium*, a tuberous fungus.

Artificially cultivated on *S. varium* by Mr. Wilson!

4. *Hymenoscypha Duriæana.* (Tul.)

Cup cyathiform, then expanded, at length nearly plane, glabrous, thin, succulent, fragile, pale brown; stem arising from a sclerotium, firm, cylindrical, straight or flexuous, brown, blackish near the slightly hirsute base; asci cylindrical; sporidia 8, cymbiform, ends obtuse, 10—15 × 6μ; paraphyses filiform, stout, disappearing when old.

Peziza Duriæana—Tul., "Select. Fung. Carp.," i. p. 103, and iii. pp. 200, 203, t. 22, f. 20–24.

Exs.—Rehm, "Asco.," No. 603; Winter, "Fungi Eur.," 2749.

On *Sclerotium sulcatum* (Rob. and Maz.), in the culms of *Carex arenaria.*

Cup 1 to 4 lines broad, stem variable in length.

Name—After M. Durieu de Maisonneuve.

The British specimens were grown from *sclerotia* under artificial culture by Mr. C. B. Plowright, of King's Lynn, to whom I am indebted for specimens. No doubt specimens will be found in a natural condition where *Carex arenaria* abounds, on carefully searching.

C. SPORIDIA OBLONGO-FUSIFORM.

5. *Hymenoscypha filipes.* Phil.

Cup thin, fragile, concave, becoming plane, at length convex, glabrous, white; stem long, filiform, flexuous, same colour, arising from a black, subglobose sclerotium; asci 8, oblong-fusiform, 8 × 1μ; paraphyses slenderly filiform.

Growing from a wrinkled, black, nearly globose sclerotium amongst vegetable fragments in a damp situation.

Cup about 1½ lines broad; stem 7½ lines long. This is much smaller than *P. Candolleana,* and the sporidia are altogether different. *Phialea capillipes* (Quelet) is grey-bistre colour, and grows from a *fusiform* sclerotium, otherwise there is a very near resemblance.

Name—*Filum,* a thread, *pes,* a foot; from the slender stem.

Shelton Rough, near Shrewsbury!

D. SPORIDIA CYLINDRICAL, SLENDER.

6. *Hymenoscypha Curreyana.* (Berk.)

Cup thin, subhemispherical, then infundibuliform, or plane, bright brown, glabrous; hymenium wrinkled, margin entire; stem slender, flexuous, nearly equal, smooth, or tomentose at the base, arising from a black sclerotium; asci cylindrical; sporidia 8, cylindrical,

slender, curved, 10—13 × 1—2·5μ; paraphyses scarce, filiform.

Peziza Curreyana—Berk. in "Trans. Linn. Soc.," xxiv. (1865), p. 495; Tul., "Select. Fung. Carp.," i. 105, t. 22, f. 11–17. Cooke, "Handbk.," No. 2083. *Peziza Curreii*—Berk., "Outl.," p. 370. *Peziza juncifida*—Nyl., "Pez. Fenn.," p. 39; Karst., "Mon Pez.," p. 133. *Rutstroemia Curreyana*—Karst., "Myco. Fenn.," p. 107. *Phialea Curreyana*—Gill., "Champ.," figure.

Exs.—Phil., "Elv. Brit.," 31.

On *Sclerotium roseum* in dead *juncus*.

The *Sclerotium* is found in the pith of rushes, from which Mr. Currey found the *Peziza* freely developed (see "Jour. Linn. Soc.," vol. 1, p. 147).

"The cup was of a bright brown colour, varying somewhat in shape; in most it was hemispherical, in some infundibuliform. In one the edge of the cup was erect, extending beyond the equator of the hemisphere; in others the edge of the cup was recurved and sinuous. The number growing from one *Sclerotium* varied from 2 to 13, and the greater the number the less was the size of the individual. The diameter of the largest cup was rather more than one-half, and of the smallest about $\frac{1}{16}$ of an inch. The stalk was well developed, being generally about the length of the diameter of the cup, of a darker colour, and tapering somewhat from above downwards. In one specimen the base of the stem at its point of junction with the *Sclerotium* was thickly covered with hairs" (F. Currey).

Name—After Mr. Frederick Currey.

St. George's Hill, near Weybridge (Mr. F. Curry). King's Lynn! (Mr. C. B. Plowright). Bomere, near Shrewsbury!

7. *Hymenoscypha ciborioides.* Fries.

Cup infundibuliform, even, dark rufescent; stem very long, hair-like, bright brown.

Peziza ciborioides—Fries, "Obs. Myco.," ii. p. 307; and "Sys. Myco.," ii. p. 117; Berk., "Ann. Nat. Hist.,"

No. 158; Cooke, "Handbk.," No. 2084. *P. Friesii*—Pers., "Myco. Eur.," i. 277. *Phialea ciborioides*—Gill., "Champ.," p. 100.

On oak-leaves.

This is retained on the authority of the Rev. M. J. Berkeley, but, as no specimen exists, we are unable to give any microscopic details, without which it is impossible to satisfactorily determine what plant was under the eye of Mr. Berkeley. There appears, indeed, much uncertainty as to Fries's plant, for Dr. Karsten regards *Peziza bulgarioides* (Rabh.) as identical with it, which grows on fir-cones, and is a subsessile species; whereas Fries found his plant on culms, and describes it as having a very long stem.

Herman Hoffman, in "Analyticæ Fungorum," finds a species growing from a sclerotium on stems of clover which he refers to this species. Rehm's *Sclerotinia ciborioides*—Fries ("Ascomyceten," No. 107) agrees perfectly with Hoffman's plant, and may be described thus:

Cup convex, fleshy, brightish brown; stem long (1 inch), slender, flexuous, smooth, arising from a small black sclerotium; asci cylindrical; sporidia 8, elliptical, biguttulate, 14—16 × 5—6μ; paraphyses filiform.

From a *sclerotium* on *Tripolium sativum*. This, which is most probably the true plant of Fries, has not yet been recorded for Britain.

Name—*Ciborium*, a large drinking-cup, εἶδος, likeness.

Subgenus II.—Ciboria. Fckl. (amended).

Firm, stem rather long, cup at first infundibuliform.

Growing on twigs or fruit. (Plate V. fig. 25.)

Differing from the preceding by not rising from a manifest sclerotium, and from the following subgenus by the generally smaller size.

Name—*Ciborium*, a large drinking-cup, εἶδος, likeness.

ARRANGEMENT OF THE SPECIES.

A. Sporidia broadly elliptic or ovate.
  (*a*) On fruit .. .. species 8–10
  (*b*) On twigs .. .. „ 11
B. Sporidia oblong or fusiform.
  (*a*) On fruit .. .. „ 12–13
  (*b*) On branches, twigs, or leaves .. „ 14–17
C. Sporidia cylindrical .. .. .. „ 18
D. Sporidia unknown .. .. „ 19

KEY TO THE SPECIES.

	Hymenium pallid yellowish-green	*luteo-virescens.*
	Hymenium brown or greyish-brown..	1
	Hymenium yellow	2
1.	Margin subserrate	*bolaris.*
1.	Margin tomentose	*amentacea.*
	Margin even	4
2.	Externally white	*Aspegrenii.*
2.	Externally yellow	3
3.	Stem long, slender, flexuous	*Bryophila.*
3.	Stem short, firm, thickish	*serotina.*
	Stem filiform	*tuba.*
4.	Externally scabrous	*pseudo-tuberosa.*
4.	Externally glabrous	5
5.	Stem short, thick, flexuous, umber-brown	*caucus.*
5.	Stem slender, at first subtomentose, pale brown ..	*echinophila.*
5.	Stem long, slender, flexuous, pallid-brown ..	*subularis.*
5.	Stem attenuated downwards, blackish-brown ..	*firma.*

A. SPORIDIA BROADLY ELLIPTIC OR OVATE.

(*a*) *On fruit.**

8. *Hymenoscypha pseudo-tuberosa.* (Rehm.)

Cup infundibuliform, when moist expanded, subpatelliform; externally, as well as the stem, brown or olivaceous brown, slightly scabrous; hymenium livid or livid-brown; stem long, rather slender, subflexuous; asci cylindraceo-clavate; sporidia 8, elliptic, obtuse at the ends, 9—10 × 4—5μ; paraphyses filiform. (Plate V. fig. 25.)

Peziza pseudo-tuberosa—Rehm, "Asco.," No. 106; Pat., p. 171, f. 378. *Sclerotinia Batschiana*—Zopf. and

* The term "fruit" is used here in a popular sense to include the parts closely associated with the fruit.

Syd., "Mycoth. Mar.," 50, c. icon. *Peziza glandicola*—Doass., "Revue Myco.," v. iii. pt. 10, p. 49; "Grevillea," iv. p. 132, t. 65, f. 288.

Exs.—Rehm, "Asco.," No. 106; Doass. and Pat., "Champ.," No. 13; Zopf. and Syd., "Mycoth. Mar.," 50; Winter, "Fungi Eur.," 2649; Ellis, "N. A. Fungi," 983.

On decayed acorns.

Cup 1 to 4 lines broad; 3 to 7 lines high.

Name—ψεῦδης, false, *tuber*, a tuber; appearing to grow from a tuber, whereas it is an acorn.

North Wootton, near King's Lynn! (Mr. C. B. Plowright).

9. *Hymenoscypha amentacea.* (Balb.)

Cup stipitate, infundibuliform, then expanded, pale brown; externally paler; margin tomentose; stem slender, more or less elongated, often flexuose; asci cylindrical; sporidia 8, elliptic, 12 × 5·5μ; paraphyses filiform, sometimes clavate at the apices.

Peziza amentacea—Balb., "Act. Taur.," ii. p. 79, t. 2; Nyl., "Pez. Fenn.," p. 37; Karst., "Pez. et Ascob.," p. 28; "Mon. Pez.," p. 131. *Pez. julacea*—Pers., "Myco. Eur.," i. p. 285. *Ciboria amentacea*—Fckl., "Symb. Myco.," p. 311. *Rutstrœmia amentacea*—Karst., "Myco. Fenn.," p. 106.

Exs.—Karst., "Fung. Fenn.," No. 320; Fckl., "F. Rh.," No. 1178; Phil., "Elv. Brit.," No. 116; Winter, "Fungi Eur.," 2964.

On catkins of willow. March and April.

Cup 2 to 5 lines broad; stem 1½ to 10 lines long, ½ a line thick. The hair-like cells of the margin are 50μ long, 18μ broad, and continuous.

Name—*Amentum*, a catkin; from its habitat.

Almond Park, Shrewsbury! Moncrieffe, near Perth! (Dr. Buchanan White).

10. *Hymenoscypha caucus.* (Rebent.)

Cup vasculiform, margin erect or incurved, flesh waxy; externally pallid, becoming brown, glabrous; hymenium umber-brown; stem short, sometimes elon-

gated, rather thick, flexuous; asci cylindrical; sporidia 8, ovate, or sub-elliptic, or subglobose, 10 × 6μ; paraphyses filiform.

Peziza caucus—Rebent., "Neom.," p. 386, t. 4, f. 17; *Pers., "Myco. Eur.," p. 283; Fries, "Sys. Myco.," ii. p. 126; Cooke, "Handbk.," 2093 (in part); "Grevillea," vi. p. 23; Pat., p. 210, f. 483. Pez. amentalis*—Schum., *"Saell.," p. 418. Ciboria caucus*—Fckl., "Symb. Myco.," *p. 311. Phialea caucus*—Gill., "Champ.," 110.

On dead catkins of poplar, lying in damp spots. Spring.

Cup 1 to 2½ lines broad; stem as long or twice as long as the width of cup, same colour as cup.

The figure of Rebentisch, t. iv. f. 17, represents an exceptional form of the plant, with a very slender stem, described as "stipes filiform, slender, not dilated upwards" (Fries, *l. c.*); but our specimens have a moderately thick stem, enlarged at the point of junction with the cup: but Fries had only seen the figure.

Name—*Caucus*, a drinking-vessel.

Near Perth, N.B.! (Dr. Buchanan White).

(*b*) *On twigs.*

11. *Hymenoscypha luteo-virescens.* (Rob.)

Cup patelliform, then convex, firm, pallid-green, margin entire; stem slender, attenuated below, flexuose, more or less elongated and immersed in the earth; asci cylindraceo-clavate; sporidia 8, elliptical, 15 × 5μ; paraphyses filiform, stout, filled with granules.

Peziza luteo-virescens—Rob. in Desm., "Crypt. Fr.," ed. i. No. 1541; ed. ii. No. 1041; "Ann. Sc. Nat.," 1847, viii. p. 188. *Peziza pallido-virescens*—Phil. in "Grevillea," vi. p. 24; "Scott. Nat.," vi. 163. *Phialea luteo-virescens*—Gill., "Champ.," p. 108.

Exs.—Desm., "Crypt. Fr.," *l. c.*; Phil., "Elv. Brit.," No. 122.

On buried petioles of *Acer*. Autumn.

Cup 1 to 5½ lines broad; stem often 10 lines long.

The exterior is clothed with fine, adpressed, silky hairs; not glabrous, as stated by Desmaziere.

Name—*Luteus*, yellow, *virens*, green; greenish-yellow.

Near Newport, Salop! Wrekin, Salop!

B. SPORIDIA OBLONGO-ELLIPTIC OR FUSIFORM.

(*a*) *On fruit.*

12. *Hymenoscypha echinophila.* (Bull.)

Cup infundibuliform, then plane, fleshy, pale cinnamon or subfuliginous, glabrous; hymenium rusty brown; stem paler, rather slender, more or less elongated, at first subtomentose, then glabrous; asci cylindraceo-clavate; sporidia 8, oblong or oblong-elliptic, curved, often furnished at the poles with a short appendage, having a globose head, 2 to 4 guttulate, 12—22 × 4—5μ; paraphyses filiform, slightly enlarged at the summits.

Peziza echinophila—Bull., "Champ.," ii. p. 235, t. 500, f. 1; Fries, "Sys. Myco.," ii. p. 118; D. C., "Flo. Fr.," ii. p. 82; Pers., "Myco. Eur.," p. 278; B. and Br., "Ann. Nat. Hist.," No. 567; Cooke, "Handbk.," No. 2085; Pat., p. 35, f. 85. *Phialea echinophila*—Gill., "Champ.," 101, c. i.

Exs.—Phil., "Elv. Brit.," 32; Rehm, "Asco.," 606; Roumg., "Fung. Gal.," 648; Cooke, "Fung. Brit.," ed. ii. 367.

On decaying involucres of chestnut. Autumn.

Cup about 2½ to 8 lines broad.

Name—ἐχῖνος, a hedgehog, φίλος, loving; found on spiny involucres.

King's Lynn (Mr. C. B. Plowright). Norton Camp, near Craven Arms! Near Hereford!

15. *Hymenoscypha subularis.* (Bull.)

Cup hypocrateriform, entire, fragile, lateritius or pallid-brown; hymenium darker; stem long, slender, flexuose, same colour; asci cylindraceo-clavate; sporidia

8, oblong or oblong-elliptic, biguttulate, 17—20 × 4—5μ; paraphyses filiform, thickened at the apices.

Peziza subularis—Bull., "Champ.," p. 236, t. 500, f. 2; D. C., "Flo. Fr.," ii. p. 83. *P. subulipes*—Pers., "Myco. Eur.," p. 282. *P. carpini*—Batsch (?); "El.," p. 215, fig. 50; "Scott. Nat.," vi. 163. *Phialea subularis*—Gill., "Champ.," p. 101, c. i.

On seeds of *Angelica*.

Cup 1 to 1½ lines broad; height, including stem, 5 to 7 lines. The exterior of our specimen was nearly white, the disc very pale brown.

Name—*Subula*, an awl; from the shape of the stem.

Forres, N.B.! (Rev. Dr. Keith).

(*b*) *On branches, twigs, or leaves.*

14. *Hymenoscypha firma*. (Pers.)

Cup infundibuliform, then expanded, repand, firm, smooth, dark or pale brown; stem more or less elongated, becoming blackish-brown, attenuated downwards; asci cylindrical; sporidia 8, oblong-elliptic, often furnished at the poles with a short spicule, bearing a globose head, biguttulate, 10—19 × 3—4μ; paraphyses filiform, stout, branched.

Peziza firma—Pers., "Syn. Fung.," p. 658; and "Myco. Eur.," p. 277; Fries, "Sys. Myco.," ii. p. 117; "Eng. Flo.," v. p. 200; Karst., "Pez. et Ascob.," p. 27; and "Mon. Pez.," p. 130; Nyl., "Pez. Fenn.," p. 35; Cooke, "Handbk.," No. 2082; Price, t. 4, f. 23. *Peziza ochroleuca*—Bolt., t. 105, f. 1; Sow., t. 115. *Ciboria firma*—Fckl., "Symb. Myco.," p. 312. *Rutstrœmia firma*—Karst., "Myco. Fenn.," p. 108. *Helotium firmum*—Karst., "Symb.," p. 233. *Phialea firma*—Gill., "Champ.," p. 101, c. i.

Exs.—Libert, exs. No. 228; Karst., "Fung. Fenn.," 736; Phil., "Elv. Brit.," 78; Rhem, "Asco.," 13; Winter, "Fungi Eur.," 2965; Cooke, "Fung. Brit.," ed. ii. 646.

On rotten sticks of oak.

Cup ¼ to ½ an inch broad; stem ½ to 2 inches high. Scattered or gregarious; leathery when fresh, hard when dry.

Name—*Firmus*, firm; from its firm flesh.

King's Lynn! (Mr. C. B. Plowright). Forres, N.B. (Rev. Dr. Keith). Hawthornden, near Edinburgh! Downton Castle, near Ludlow! Condover! Craven Arms! Church Stretton! and The Wrekin, Salop.

15. *Hymenoscypha bolaris.* (Batsch.)

Cup infundibuliform or subhemispherical, firm; externally fibrilose-veined or wrinkled, nearly ochraceous; hymenium brown, margin subserrated; stem rather short, attenuated downwards or equal; asci cylindrical; sporidia oblong-elliptic, biguttulate, 14—16 × 4—6μ; paraphyses filiform, rather stout.

Peziza bolaris—Batsch, i. p. 221, f. 155; Fries, "Sys. Myco.," ii. p. 112; Pers.; "Syn. Fung.," p. 658; "Myco. Eur.," p. 279; A. and S., p. 330; "Eng. Flo.," v. p. 200; Cooke, "Handbk.," 2078. *Ciboria bolaris*—Fckl., "Symb. Myco.," p. 311.

Exs.—Phil., "Elv. Brit.," 171; Roumg., "Fung. Gal.," 1260.

On dry fallen branches of holly.

Cup 1½ to 2 lines broad and high; externally paler than the disc; when dry the margin is inflexed.

Name—βῶλος, a clod; perhaps in allusion to the colour.

Forres, N.B.! (Rev. Dr. Keith).

16. *Hymenoscypha Aspegrenii.* (Fries.)

Gregarious, stipitate; cup subrepand; hymenium yellow; externally, as well as the subascending stem, white; asci cylindrical; sporidia 8, oblong or oblong-elliptic, biguttulate, 8—10 × 3·5μ.

Peziza Aspegrenii—Fries, "Sys. Myco.," ii. p. 131. *Helotium Aspegrenii*—Fries, "Summa Veg. Scan.," p. 355; Berk., "Outl.," p. 372; Cooke, "Handbk.," No. 2144. *Peziza bicolor*, var. Sow., t. 369, f. 7. *Phialea Aspegrenii* —Gill., "Champ.," p. 107, c. i.

On rotten hazel in a wet ditch. Spring.

"Two to three lines high; stem somewhat slender" (Fries).

At first hemispherical, then expanded and plane; stem slender, attenuated downwards.

Name—After Aspegren, a friend of Fries.

Wier Coppice, near Shrewsbury!

17. *Hymenoscypha serotina.* (Pers.)

Cup stipitate, plano-convex, rather thin, bright yellow; stem short, firm, thickish; asci cylindraceo-clavate; sporidia 8, oblong-elliptic or clavate, straight or slightly curved, 22—24 × 4μ.

Helotium serotinum—Berk., "Outl.," p. 372; Fckl. "Symb. Myco.," p. 313; Cooke, "Handbk.," No. 2132; Gill., "Champ.," p. 156. *Peziza serotina*—Pers., "Syn. Fung.," p. 661; Fries, "Sys. Myco.," ii. p. 119; "Eng. Flo.," v. p. 201. *Helvella aurea*—Bolt., t. 98.

Exs.—Fckl., 1157.

On dead leaves and branches in water. Autumn.

Cup about 1 to 2 lines broad; stem 1½ to 2 lines long. Gregarious or crowded.

Name—*Serotinus*, late; from its late appearance.

Near Halifax (Bolton).

C. SPORIDIA CYLINDRICAL.

18. *Hymenoscypha bryophila.* (Fries.)

Cup stipitate, slender, at first concave, then convex, glabrous, flavescent; stem long, slender, flexuose, slightly pubescent; asci clavate; sporidia cylindrical, curved, 10 × 2μ; paraphyses filiform, enlarged upwards, septate.

Peziza bryophila—Fries, "Sys. Myco.," ii. p. 119. *P. pyxidata*—"Flo. Dan.," t. 1017, f. 1. *Phialea bryophila*—Gill., "Champ.," p. 100.

Amongst moss in mountain pastures. Autumn.

Cup 1 to 1½ lines broad, 2½ to 5 lines high. Scattered, slender, nearly white, becoming yellowish.

Name—*Bryum*, a genus of mosses, and φίλος, loving; from its habitat.

Longmynd, Salop!

D. SPORIDIA UNKNOWN.

19. *Hymenoscypha tuba.* (Bolt.)

Cup campanulate, disc plane-umbilicate, stem filiform; altogether bright pale yellow.

Peziza tuba—Bolt., "Hist. Fung.," iii. t. 106, f. 1; Pers., "Myco. Eur.," p. 278; Fries, "Sys. Myco.," ii. p. 128 (excl. part); "Eng. Flo.," v. p. 202. *Meruleus tubæformis*—With., vol. 4, p. 146. *Helotium tuba*—Fries, "Summa Veg. Scan.," p. 355; Berk., "Outl.," p. 372; Cooke, "Handbk.," No. 2140. *Phialea tuba*—Gill., "Champ.," p. 99.

On putrid stems of plants, in moist places.

"This beautiful little peziza adheres by a claw at the base to the putrid stems of decayed plants in moist places near rills of water. It is shaped like a trumpet in miniature. The height about half an inch. The colour a bright pale yellow" (Bolt., *l. c.*).

Name—*Tuba*, a trumpet; from its shape.

Var. B. *Ochracea*—B. and Br., "Ann. Nat. Hist." No. 1486.

On a heap of decaying vegetables.

Menmuir (Rev. M. Anderson).

SUBGENUS III.—TRICHOSCYPHA. Cooke.

Cup cyathiform, entire, stipitate; margin furnished with hair-like rigid processes. (Plate V. fig. 26.)

Dr. Cooke has shown that the hair-like processes in the four exotic species, for the reception of which he formed the subgenus, viz. *Peziza sulcipes* (Berk.), *P. Hindsii* (Berk.), *P. tricholoma* (Mont.), and *P. insititia* (B. and C.), are not true hairs, but squamules, composed of a number of longitudinal cells lying parallel to each other, the exterior ones gradually diminishing in length, so that the base of each squamule is broader than the apex. This structure is the same in the teeth of the well-known *Peziza inflexa* (Bolt.), and although this species is much smaller than the exotic species named above, it must be

placed in the same subgenus. In a more consistent classification of the *Discomycetes*, this and the two preceding subgenera should be closely associated with the series *Phialea* of Fries.

Name—θρίξ, hair, and σχύφος, a cup. In allusion to the hair-like processes with which the margin and sometimes the exterior are furnished.

20. *Hymenoscypha coronata.* (Bull.)

Cup at first pyriform or hemispherical, then cyathiform, glabrous, pallid or yellowish, margin crowned with setaceous teeth; stem slender, straight or curved; asci cylindrical; sporidia 8, fusiform, 15—20 × 3—4μ; paraphyses rather stout, enlarged upwards. (Plate V. fig. 26.)

Peziza coronata—Bull., "Champ.," p. 251, t. 416, f. 4; Fries, "Sys. Myco.," ii. 120; Pers., "Obs.," ii. p. 36; D. C., "Flo. Fr.," ii. p. 83; Karst., "Pez. et Ascob.," p. 29; and "Mon. Pez.," p. 135; Nyl., "Pez. Fenn.," p. 38; Cooke, "Handbk.," No. 2086; Gonn. and Rabh., iii. t. 6, f. 9; Fckl., "Symb. Myco.," p. 307. *P. radiata*—Pers., "Syn. Fung.," p. 662; "Myco. Eur.," i. p. 287; Nees, "Sys.," f. 293. *P. subulata*—Schum., "Flo. Dan.," t. 1380. *P. denticulata*—Schum., "Flo. Dan.," t. 1016, f. 3. *Helotium coronatum*—Karst., "Symb.," p. 237; "Myco. Fenn.," p. 136. *Phialea coronata*—Gill., "Champ.," p. 110.

Exs.—Desm., "Crypt. Fr.," ed. i. 872, ed. ii. 72; Rabh., "Herb. Myco.," ed. ii. 219; Karst., "Fung. Fenn.," 146; Fckl., "F. Rh.," 1183; Phil., "Elv. Brit.," 121; Cooke, "Fung. Brit.," ed. ii. 379.

On dead herbaceous stems. Autumn and winter.

Cup ½ to 1 line broad; stem ½ to 1½ line high. Scattered or gregarious; whitish, pallid, or tinged with yellowish brown.

Name—*Corona*, a crown.

Shobdon, Herefordshire! Frequent.

Var. *inflexa.* (Bolt.)

Whitish, teeth triangular.

Peziza inflexa—Bolt., t. 106, f. 2; Sow., t. 306;

"Eng. Flo.," v. p. 201; Cooke, "Handbk.," No. 2087.
Phialea inflexa—Gill., "Champ.," p. 106.
On stems of nettles. Autumn.
Name—*Inflecto*, to bend or curve.
Near Halifax (Bolton).

Subgenus IV.—Cyathoidea.

Smaller than the preceding; cups thin, at first urceolate, then concave or plane, orbicular, glabrous, or subtomentose; stem usually slender. (Plate V. fig. 27.)

Rarely exceeding 3 lines in height. Growing on wood, herbaceous stems, and fruit.

Name—κύαθος, a cup, εἶδος, a resemblance.

Arrangement of the Species.

A. Sporidia oblong or oblongo-elliptic.
- (*a*) On dead wood .. .. species 21–24
- (*b*) On herbaceous stems .. .. „ 25
- (*c*) On leaves .. .. „ 26–28
- (*d*) On fruit .. .. „ 29

B. Sporidia fusiform or clavate, broad.
- (*a*) On wood (except *fructigena* on fruit) „ 30–34
- (*b*) On herbaceous stems and grass .. „ 35
- (*c*) On leaves .. .. „ 36

C. Sporidia fusiform, narrow.
- (*a*) On wood .. .. „ 37–39
- (*b*) On herbaceous stems .. .. „ 40–42
- (*c*) On leaves .. .. „ 43–44

D. Sporidia pyriform or reniform.
- (*a*) On fruit .. .. „ 45
- (*b*) On leaves .. .. „ 46

E. Sporidia cylindrical.
- (*a*) On dead wood .. .. .. „ 47
- (*b*) On root-fibres .. .. .. „ 48
- (*c*) On carex stems .. .. .. „ 49
- (*d*) On fruit .. .. „ 50

Key to the Species.

Hymenium brown 1
Hymenium pale tan-colour, externally farinose .. *nitidula.*
Hymenium testaceous (confer *scutula*) .. .. *emergens.*
Hymenium red 3
Hymenium amber .. .. *electrina.*
Hymenium yellow 4
Hymenium white 6
Hymenium rosy-white .. .. *rhodoleuca.*
Hymenium, ? colour .. .. *aquatica.*

1.	Cups pale cinnamon or brownish-yellow	*renisporum.*
	Cup externally yellow	*lutescens.*
	Cup externally brown	2
2.	Stem short, black	*strobilina.*
	Stem short, yellowish-brown	*calyculus.*
	Stem short, white or greyish-brown	*amenti.*
	Stem rather long, pallid-brown	*monilifera.*
	Stem more or less elongated, stout, pale brown (on seed-vessels)	*cacaliæ.*
	Stem more or less elongated, brown, darker at the base (on leaves)	*petiolorum.*
3.	Cup cyathiform or plane	*Broomei.*
	Cup urceolate (on *Equisetum*)	*Persoonii.**
4.	Externally furfuraceous	*rhizophila.*
	Externally villous	*Laburni.*
	Externally glabrous	5
5.	Stem long, tomentose below; disc orange-yellow ..	*Hedwigii.*
	Stem long, subflocculose; disc yellowish-red ..	*virgultorum.*
	Stem long, glabrous (at first pubescent)	*fructigena.*
	Stem long, glabrous; sporidia large..	*scutula.*
	Stem short, tomentose below; disc darkish-yellow	*aurea.*
6.	Externally pruinose; margin fimbriate	*concolor.*
	Externally pruinose; margin subdenticulate ..	*eburnea.*
	Externally perpendicularly striate	*Urtica.*
	Externally glabrous, ...	7
7.	Growing on larch-leaves	*advenula.*
	Growing on pine-leaves	*subtile.*
	Growing on wood	*sordida.*
	Growing on petioles	*albida.*
	Growing on herbaceous stems	8
8.	Sporidia oblongo-fusiform	*clavata.*
	Sporidia narrowly fusiform or linear	*cyathoidea.*

A. SPORIDIA OBLONG OR OBLONGO-ELLIPTIC.

(*a*) *On dead wood.*

21. *Hymenoscypha Broomei* (nov. sp.).

Scattered, stipitate, cyathiform or plane, flesh red, glabrous, firm; margin entire; stem rather slender, cylindrical, flexuous; asci cylindraceo-clavate; sporidia 8, oblong, rounded at the ends or subfusiform, 15 × 5μ. (Plate V. fig. 27.)

Peziza araneosa—Bull., Kew Herbarium.

On dead wood.

Cup 1 line broad, 1 line high.

Name—After Mr. C. E. Broome.

* Removed to genus *Stamnaria.*

22. *Hymenoscypha monilifera.* (Fckl.)

Stipitate, scattered or cæspitose; cup seated amongst *Bispora*, at first subclavate, at length dilated; hymenium concave, patellate when mature, marginate, waxy, externally as well as the rather long stem, smooth, pallid-brown; disc slightly darker; asci elongated; sporidia 8, biseriate, oblong, attenuated towards each end, but obtuse, at length uniseptate, 12 × 4μ, hyaline; paraphyses filiform, subclavate.

Bispora monilifera—Fckl., "Symb. Myco.," p. 310. *Peziza monilifera*—Cooke, "Grevillea," iv. p. 111.

Exs.—"F. Rh.," 74.

Amongst *Bispora monilioides* on cut timber.

Cup ½ to 1 line broad, ½ to 1½ lines high.

Fuckel has constituted a new genus, under the name *Bispora*, for this species, of which he assumes that *Bispora monilioides* is the conidial form.

Name—*Monile*, a necklace, and *fero*, to carry; from its relationship to *Bispora monilioides*.

Dupplin Castle, N.B.

23. *Hymenoscypha Hedwigii* (nov. sp.).

Cup stipitate, concave or plane, yellow tinged with orange, margin entire, paler beneath; stem rather long, lower half tomentose, white and enlarged; asci cylindraceo-clavate; sporidia oblong or oblong-elliptic, biguttulate, 7—10 × 3μ.

Octospora fungoidaster—Hedw., "Mus. Frond.," ii. p. 53, t. xix. figs. 1–4. *Peziza fructiginea*, β. *virgultorum*—Fries, "Sys. Myco.," ii. p. 118. *P. virgultorum*—"Flo. Dan.," t. 1016, f. 2.

On twigs of hazel. May.

Cup ½ to 1½ lines broad, height about the same. The cups are at first concave, then plane; the stem is white, enlarged at the base, and attached to the wood by white mycelium.

Name—After Joannes Hedwig.

Hanwood, near Shrewsbury!

24. *Hymenoscypha lutescens.* (Hedw.)

Cup stipitate, at first hemispherical, then hypocrateriform, yellowish; hymenium brownish, margin paler; stem short or sometimes elongated, slender, flexuose, subcylindrical, pale; asci cylindraceo-clavate; sporidia 8, oblong or oblong-elliptic, 12 — 15 × 4μ; paraphyses slender, filiform.

Octospora lutescens—Hedw., "Mus. Frond.," ii. t. 9, f. 3. *Peziza lutescens*—A. and S., p. 334; "Flo. Dan.," t. 1440, f. 1; Wahl., "Ups.," p. 465; Fries, "Sys. Myco.," ii. p. 120. *Helotium lutescens*—Berk., "Outl.," p. 372; Cooke, "Handbk.," No. 2134. *Phialea lutescens*—Gill., "Champ.," 157.

On dead twigs amongst moss, etc.

Cup ½ to 1½ lines broad, and as much high. Gregarious.

Name—*Luteus*, yellow; yellowish.

Bloxham in Herb. Kew!

(*b*) *On herbaceous stems.*

25. *Hymenoscypha rhodoleuca.* (Fries.)

Cup plane, rosy-white, glabrous; stem nearly equal, slender, same colour; asci cylindraceo-clavate; sporidia 8, oblong or oblong-elliptic, 10—14 × 4μ; paraphyses filiform.

Peziza rhodoleuca—Fries, "Obs. Myco.," ii. p. 306; "Sys. Myco.," ii. p. 127; Karst., "Pez. et Asco.," p. 31; and "Mon. Pez.," p. 139. *Helotium rhodoleucum*—Fries, "Summa Veg. Scan.," p. 355; Karst., "Myco. Fenn.," p. 128.

Exs.—Karst., "Fung. Fenn.," 152.

On dead branches of *Equisetum*, in damp places. Spring.

Cup ½ to ¾ line broad; stem varying from ¼ to ½ a line high. When young this plant is pyriform, but soon becomes expanded, and at length plane or convex. The colour is a beautiful rosy-white.

Name—ῥόδον, a rose, λευκός, white; rose-white.

Shelton Rough, near Shrewsbury!

(*c*) *On leaves.*

26. *Hymenoscypha petiolorum.* (Rob.)

Rather large, stipitate, often solitary; cup fulvous, concave, then plane, margined with somewhat triangular teeth; stem more or less long; asci clavate; sporidia 8, oblong, curved, 2-guttulate, 17 × 4μ; paraphyses filiform, rather stout.

Peziza petiolorum—Rob. in Desm., "Crypt. Fr.," ed. i. 1158, ed. ii. 658; "Ann. Sc. Nat.," 1842, p. 91. *Peziza denigrans*—Fckl., "Symb. Myco.," p. 309. *Phialea petiolorum*—Gill., "Champ.," 102.

Exs.—Desm., *l. c.*; Fckl., "F. Rh.," 2193.

On petioles of beech, etc. Autumn.

Cup about ½ a line broad; stem reaching sometimes ½ an inch in length. The margin is furnished with minute, somewhat triangular teeth, easily overlooked in dried specimens—not large enough to warrant putting it in the subgenus *Trichoscypha*.

Name—*Petiole*, the stalk of a leaf; from its habitat.

Shrewsbury!

27. *Hymenoscypha subtile.* (Fries.)

Cup stipitate, plano-convex, concave beneath, rather firm, white, becoming pallid-ochraceous; stem slender, rather short; asci cylindraceo-clavate; sporidia 8, elliptic or subfusiform, 5 × 2μ; paraphyses filiform, slender, scarce.

Helotium subtile—Fries, "Obs. Myco.," ii. p. 310; "Summa Veg. Scan.," p. 354; Karst., "Myco. Fenn.," p. 131; Cooke, "Handbk.," 2130; Fckl., "Symb. Myco.," 315. *Peziza subtilis*—Fries, "Sys. Myco.," ii. p. 157; "Eng. Flo.," v. p. 208. *Phialea subtile*—Gill., "Champ.," p. 161.

Exs.—Karst., "Fung. Fenn.," 68; Fckl., "F. Rh.," 1160; Rovmg., "Fung. Gal.," 1265.

On decaying leaves of pine in shady woods. Autumn.

Cup about 500 to 800μ broad, and 200 to 600μ high. Scattered; at first white, becoming yellow when dried. A very minute and delicate species.

Name—*Subtilis*, small, delicate.
Rose Hill, near Shrewsbury!

28. *Hymenoscypha advenula.* Phil.

Cup stipitate, concave or plane, tough, white or yellowish white; stem equal, slender; asci cylindraceo-clavate; sporidia 8, oblong-elliptic, 8—9 × 2·5—4μ; paraphyses slenderly filiform, scarce.

Helotium advenulum—Phil., "Grevillea," vi. p. 24.

Exs.—Phil., "Elv. Brit.," No. 133.

On fallen decaying leaves of larch. Spring.

Very minute, scattered, or gregarious. Varying from the preceding so little that I had some misgiving at first whether it should be separated, but the sporidia are nearly double the size.

Name—*Advena*, a stranger; a little stranger.
Trefriw, North Wales!

(*d*) *On fruit.*

29. *Hymenoscypha strobilina.* (Fries.)

Pyriform, firm; cup concave, pallid-rufescent; margin tumid, entire; stem short, black; asci subcylindrical, slender, slightly enlarged towards the top; sporidia 8, oblong or fusiform, 8—12 × 2·5μ; paraphyses slenderly filiform.

Peziza strobilina—Fries, "Sys. Myco.," ii. p. 125; Karst., "Pez. et Ascob.," p. 30; Nyl., "Pez. Fenn.," p. 41; "Grevillea," ii. p. 186. *Ombrophila strobilina*—Karst., "Myco. Fenn.," p. 92.

Exs.—Karst., "Fung. Fenn."; Rabh., "Fung. Eur.," ed. ii. Nos. 222 and 624; Phil., "Elv. Brit.," No. 40; Roumg., "Fung. Gal.," 1254.

On fir-cones. Autumn and winter.

Cup 300 to 500μ broad, and the same high; disc at first urceolate, afterwards more expanded; the texture is tough, and when dry the plant is rigid and black.

Name—*Strobilis*, a pine-cone; from the habitat.

Derbyshire! (Mr. James Renny). North Wootton,

Norfolk! (Mr. C. B. Plowright). Near Hereford! near Shrewsbury! Forres, N.B.! (Rev. Dr. Keith).

B. SPORIDIA BROADLY FUSIFORM OR CLAVATE.

(*a*) *On wood* (*one on fruit*).

30. *Hymenoscypha aquatica.* (Curr.)

Cup stipitate; disc minute, very little wider than the apex of the delicate, almost filiform stem, concave or convex; asci cylindrical or cylindraceo-clavate; sporidia 8, colourless, elliptic or clavate, biguttulate, 13—15 × 5—6μ.

Helotium aquaticum—Curr., "Linn. Trans.," xxiv. p. 154, t. 25, f. 19; Cooke, "Handbk.," No. 2139.

On fragment of stick in water. May.

Cup ½ a line broad; stem about 2 to 2½ lines long; solitary. The measures of the sporidia given above are derived from Mr. Currey's original specimen. It is to be regretted he made no note of the colour.

Name—*Aquaticus*, of the water; from its habitat.

Paul's Cray Common, Kent! (Mr. F. Currey).

31. *Hymenoscypha virgultorum.* (Vahl.)

Gregarious, stipitate, tough, glabrous, hymenium yellowish red, at length rufous; cup patellæform or frequently convex; exterior paler; stem slender, attenuated downwards, subflocculose; asci cylindraceo-clavate; sporidia 8, fusiform, often slightly curved, biguttulate, becoming 1 to 2 pseudo-septate, 14—23 × 3—5μ; paraphyses filiform.

Peziza virgultorum—Vahl., "Flo. Dan.," t. 1016, f. 2; Nyl., "Pez. Fenn.," p. 37; Fries, "Sys. Myco.," ii. p. (as var. β of *fructigena*). *Helotium virgultorum*—Karst., "Myco. Fenn.," p. 109; Cooke, "Handbk.," 2133 (exs. part).

On dead branches of trees. Autumn.

This nearly resembles *fructigena*, and is regarded by many high authorities as a variety of that species, but it

differs in the sporidia and the colour of the disc. This is a common species in damp shady woods.

Name—*Virgultum*, a twig; from the habitat.

North Wootton, Norfolk! (Mr. C. B. Plowright). Colwyn Bay, North Wales! Shelton Rough, Shrewsbury!

32. *Hymenoscypha fructigena.* (Bull.)

Gregarious, tough, glabrous, pallid, becoming yellowish; cup patellæform; stem long, thin, flexuous; asci cylindraceo-clavate; sporidia 8, clavate or fusiform, biguttulate, becoming pseudo-1-septate, 15—17 × 3—4μ; paraphyses filiform.

Peziza fructigena—Bull., "Champ.," p. 263, t. 228; Batsch., "El.," t. 150; Sow., t. 117; Pers., "Obs.," i. p. 42; Nees., "Sys.," f. 292; Schum., "Saell.," p. 420; A. and S., p. 331; Fries, "Sys. Myco.," ii. p. 118 (in part); Karst., "Myco. Fenn.," p. 113; Fckl., "Symb. Myco.," p. 314; "Eng. Flo.," v. p. 201. *Phialea fructigena*—Gill., "Champ.," p. 99, c. i.

Exs.—Desm., "Crypt. Fr.," ed. i. 1060, ed. ii. 460; Cooke, "Fung. Brit.," 479, ed. ii. 392.

On acorns, beech-mast, and chestnuts.

The hymenium is usually white at first, afterwards it becomes yellow; the exterior dirty white; the stem is attenuated towards the base, not unfrequently minutely pubescent; the sporidia vary from clavate to fusiform, straight or slightly curved, with two guttulæ, becoming uniseptate.

Name—*Fructus*, fruit, *gigno*, to bear; growing on fruit.

Dinmore, near Hereford! North Wales! Forres, N.B.! (Dr. Keith). Scarborough! (Mr. Massee). Colwyn Bay, North Wales!

33. *Hymenoscypha laburni.* (B. and Br.)

Cup shortly stipitate or sessile, concave or plane, externally villose, furfuraceous, pale; margin inflexed; hymenium ochraceous, bright-coloured; asci cylindraceo-clavate; sporidia 8, fusiform, sub-acute or clavate, 2 to

4-guttulate, 17—27 × 5—9μ; paraphyses filiform, rather stout.

Helotium laburni—B. and Br., "Ann. Nat. Hist.," No. 1624; "Grevillea," v. p. 62.

On decorticated branches of *Cytisus laburnum*, or beneath the cuticle, which it seems to throw off.

Cups $\frac{1}{4}$ to $\frac{1}{2}$ a line broad, gregarious, fleshy, firm; flesh yellowish-white.

Name—*Laburnum*, a well-known tree.

Menmuir, N.B.! (Rev. M. Anderson).

34. *Hymenoscypha calyculus.* (Sow.)

Cup stipitate, concave, margin elevated or expanded, yellowish-brown, fleshy, firm, smooth; stem short, thick, attenuated downwards; asci cylindraceo-clavate; sporidia 8, oblong or oblong-elliptic or clavate, straight or slightly curved, 15—18 × 3—5μ; paraphyses filiform, slender.

Helotium calyculus—Berk., "Outl.," p. 372; Cooke, "Handbk.," No. 2142. *Peziza calyculus*—Fries, "Sys. Myco.," ii. p. 129; "Eng. Flo.," v. p. 202; Sow., t. 116; With., iv. p. 307; Purt., ii. and iii. No. 1033. *P. infundibulum*—Grev., "Flo. Edin.," p. 423; Fries, "Sys. Myco.," ii. p. 130; B. and Br., "Ann. Nat. Hist.," No. 961; Batsch, f. 147. *Phialea calyculus*—Gill., "Champ.," p. 108.

On decorticated wood and branches.

Cup about 1 to 1$\frac{1}{2}$ lines broad, and the same high. Bright clear brown, flesh firm; disc concave or plane; stem short, enlarging upwards into the cup. This has probably been confused with *H. serotinum* and *ferrugineum*, but the sporidia differ.

Name—κάλυξ, the cup of a flower; from its shape.

Near Shrewsbury! Forres! (Rev. Dr. Keith). King's Lynn! (Mr. C. B. Plowright).

(*b*) *On herbaceous stems.*

35. *Hymenoscypha scutula.* (Pers.)

Cup hypocrateriform, becoming nearly plane, firm, glabrous, testaceous yellow; stem rather slender; asci

cylindraceo-clavate; sporidia 8, fusiform or clavate, straight or curved, 2 to 3-guttulate or pseudo-septate, 18—25 × 4—6μ; paraphyses filiform.

Peziza scutula—Pers., "Myco. Eur.," p. 284; Fries, "Sys. Myco.," ii. p. 123; Kickx., "Flo. Flan.," i. 485; Nees, f. 282. *Helotium scutula*—Karst., "Symb.," p. 233; "Myco. Fenn.," 110; "Scott. Nat.," vi. 125. *Phialea scutula*—Gill., "Champ.," p. 108. *Helotium virgultorum*—Pat., p. 38, f. 94.

Exs.—Karst., "Fung. Fenn.," 739; Sacc., "Myco. Ven.," No. 728.

On dead herbaceous stems, *Spirea Ulmaria*, etc.

Cup ½ to 1½ lines broad; stem ½ to 2½ lines long. This species has a group of near allies which can be regarded only as varieties.

Name—*Scutum*, a shield; from its resemblance when fully expanded to a little shield.

Forres, N.B.! (Rev. J. Keith). Falmouth! (Mr. E. M. Holmes). Persley Den, near Aberdeen! (Professor Trail).

Var. *fucata*. Phil. in "Elv. Brit.," No. 120.

Cup subhemispherical; margin incurved; disc brownish yellow; externally whitish, stained irregularly with dirty yellow.

On dead stems of *Polygonum* lying in water.

Ellesmere, Salop!

Var. *Lysimachiæ*. Phil. in "Elv. Brit.," No. 120A.

On dead stems of *Lysimachia vulgaris*.

Shrewsbury!

Var. *Menthæ*. Phil.

Cup plane or convex; disc bright yellow; stem slender; sporidia 14—2 × 3—5μ; 2 to 3 guttulæ, often pseudo-uniseptate.

Helotium Menthæ in "Elv. Brit.," No. 188.

On decaying stems of *Mentha*.

Name—*Lysimachia*, a genus of *Primulaceæ*; from its habitat.

Shrewsbury!

Var. *Rudbeckiæ*.

Cup 1 line wide; stem about 1 to 1¼ lines high, cylindrical, expanding into the base of the cup; sporidia 18—25 × 4—6μ.

On dead stems of *Rudbeckia*.

Name—*Rudbeckia*, a genus of *Compositæ*; from its habitat.

Batheaston! (Mr. C. E. Broome).

(c) *On leaves.*

36. *Hymenoscypha albida*. (Rob.)[1]

Cup at first subhemispherical, then plane, white, glabrous, margin entire; stem rather stout, enlarged upwards; asci cylindraceo-clavate; sporidia 8, fusiform or oblongo-elliptic, 2 to 3-guttulate, curved, becoming pseudo-septate, 15—17 × 4μ; paraphyses filiform.

Peziza albida—Rob. in Desm., "Crypt. Fr.," ed. i. 2004, and ed. ii. 1604; "Ann. Sc. Nat.," 1851, vol. xvi. p. 323. *Helotium scutula*, var. *albidum*—Karst., "Myco. Fenn.," p. 112; "Grevillea," vi. p. 127. *Phialea albida*—Gill., "Champ.," p. 105.

Exs.—Desm., "Crypt. Fr.," *l. c.*

On decaying petioles of *Fraxinus*.

Cup ½ to 1 line broad; stem about the same long. When fresh this is ivory-white; the stem is often brown at the base.

Name—*Albidus*, inclining to white; whitish.

Copthorn, near Shrewsbury!

Var. *Æsculi*.

The sporidia are larger than in *H. albida*, 20—23 × 4—5μ, and more frequently clavate.

On petioles of horse-chestnut.

Name—*Æsculus*, the horse-chestnut; from its habitat.

Shobdon Court, Herefordshire!

C. SPORIDIA FUSIFORM, NARROW.

(*a*) *On wood.*

37. *Hymenoscypha aurea.* (Pers.)

Cup stipitate, concave, or plane, fleshy, darkish-yellow, glabrous, except at the base of the slender, rather long stem, which is tomentose and white; asci cylindraceo-clavate; sporidia 8, fusiform or oblong-fusiform, simple or pseudo-septate, 9—10 × 1—2μ; paraphyses filiform, slender, sometimes branched.

Helotium aureum—Pers., "Syn. Fung.," p. 678; A. and S., p. 350; Fries, "Sys. Myco.," ii. p. 156; Gill., "Champ.," p. 155.

On decorticated wood, especially pine.

Cup about ½ to 1 line broad; stem about 1 to 1½ lines long, gregarious, slender, but firm.

Name—*Aureus*, golden; from the colour.

Near Shrewsbury; Carlisle! (Dr. Carlyle).

38. *Hymenoscypha emergens.* Cooke and Phil.

Scattered or fasciculate, emerging from beneath the bark; cups hemispherical or infundibuliform, stipitate, glabrous, pale ochraceous; hymenium darker; margin entire; stem flexuose, tapering downwards; asci cylindrical, or cylindraceo-clavate; sporidia fusiform, simple, straight or slightly bent, 12—14 × 1—1·2μ; paraphyses not seen.

On dead branches of a tree, emerging from beneath the bark.

Cup ¼ to ¾ line broad; height, including stem, ½ to ¾ line.

Name—*Emergo*, to issue; from its habit of growth.

Scotland! (Capt. Carmichael in Kew Herb.).

39. *Hymenoscypha concolor.* Phil.

Cup hemispherical, thin, firm, pallid or dirty white; externally pruinose; hymenium pallid-brown; margin minutely fimbriate; stem short, rather stout; asci cylin-

draceo-clavate; sporidia 8, oblong or subfusiform, 8—10 × 2—3μ; paraphyses filiform, slender.

Peziza concolor—Phil. in "Grevillea," viii. p. 102; Steven., "Myco. Scot.," p. 321.

On hard decorticated wood.

Cup $\frac{1}{8}$ to $\frac{1}{2}$ a line broad; stem $\frac{1}{4}$ of a line long.

Name—*Concolor*, of the same colour; without variation of colour.

Forres, N.B.! (Rev. Dr. Keith).

b. On herbaceous stems and grass.

40. *Hymenoscypha cyathoidea.* (Bull.)

Cup at first pyriform, then hemispherical, at length expanded, thin, tough, glabrous, white or pallid, margin entire; stem rather long, flexuous, attenuated downwards; asci cylindraceo-clavate; sporidia 8, narrowly fusiform or linear, 5—8 × 1—1·5μ; paraphyses filiform, slender.

Peziza cyathoidea—Bull., "Champ.," p. 250, t. 416, f. 3; Pers., "Syn. Fung.," p. 662; "Myco. Eur.," i. p. 284; Fries, "Sys. Myco.," ii. p. 124; "Eng. Flo:," v. p. 202; Nees, f. 294. *P. pedicellata*—Sow., t. 369, f. 4; Cooke, "Handbk.," No. 2092; Karst., "Pez. et Ascob.," p. 30; Nyl., "Pez. Fenn.," p. 40; Gonn. and Rabh., iii. t. 6, f. 7. *Cyathicula vulgaris*—De Not., "Disc.," p. 27. *Helotium cyathoideum*—Karst., "Myco. Fenn.," p. 136. *Phialea cyathoidea*—Gill., "Champ.," p. 106.

Exs.—Desm., "Crypt. Fr.," ed. i. 1061, ed. ii. 461; Berk., exs. 158; Karst., "Fung. Fenn.," 836; Fckl., "F. Rh.," 1179; Phil., "Elv. Brit.," 79, 80; Rehm, "Asco.," 306; Roumg., "Fung. Gal.," 832; Cooke, "Fung. Brit.," ed. ii. 377.

On dead herbaceous stems, thistle, potato, *Lychnis*, *Heracleum*, etc.

Cup $\frac{1}{4}$ to $\frac{3}{4}$ of a line broad; the stem about $\frac{1}{2}$ a line long. Scattered or gregarious, cyathiform, texture tough, when quite young slightly pruinose externally; the stem slender, variable in length.

Name—κύαθος, a little cup, εἶδος, a resemblance.

Forres, N.B.! (Rev. Dr. Keith). Neatishead (Dr. Cooke). Church Stretton, Salop! Wrekin, Salop!

Var. *Epilobii.* Cooke in "Fung. Brit.," No. 378.

On dead stems of *Epilobium.*

Forden, Montgomeryshire (Rev. E. Vize).

Var. *Solani.* Pers., "Obs.," 2, p. 80.

On dead potato-stems.

Exs.—Cooke, "Fung. Brit.," 377.

Wellington, Salop!

41. *Hymenoscypha Urticæ.* (Pers.)

Cup turbinate, pallid-white or fuscescent, perpendicularly striate, firm; margin connivent, slightly pruinose; hymenium urceolate; stem rather short, equal, smooth; pale yellow; asci cylindraceo-clavate; sporidia 8, oblong-fusiform, 7—8 × 2μ.

Peziza Urticæ—Pers., "Myco. Eur.," i. p. 286; Nyl., "Pez. Fenn.," p. 39; Karst., "Mon. Pez.," 136. *Peziza striata*—Fries, "Sys. Myco.," ii. 122; Fckl., "Symb. Myco.," p. 307. *Helotium Urticæ*—Karst., "Symb.," p. 237; and "Myco. Fenn.," p. 133.

On dead stems of nettles. Autumn and winter.

Cup about $\frac{1}{4}$ of a line; stem about the same.

Name—*Urtica*, generic name of the nettle.

Church Stretton, Salop! Clungunford, Salop! Carlisle! (Dr. Carlyle).

42. *Hymenoscypha clavata.* (Pers.)

Cup cyathiform, pallid or fuscescent, glabrous, firm; stem rather thick, enlarging into the base of cup; asci cylindraceo-clavate; sporidia 8, oblong or oblong-fusiform, 4—8 × 1—2μ.

Peziza clavata—Pers., "Myco. Eur.," p. 285; Fries, "Sys. Myco.," ii. p. 122; Fckl., "Symb. Myco.," p. 307. *Helotium clavatum*—Karst., "Myco. Fenn.," p. 135. *Phialea clavata*—Gill., "Champ.," p. 110.

Exs.—Phil., "Elv. Brit.," 124.

On dead stems of *Angelica* and *Pteris*.

Cup about $\frac{1}{4}$ of a line broad; stem about the same long; scattered or gregarious.

Name—*Clava*, a club; shaped like a club.

Near Shrewsbury!

(*c*) *On leaves.*

43. *Hymenoscypha nitidula.* (B. and Br.)

Cup minute, subhemispherical, irregular; externally pale watery tan, minutely farinaceous, glistening, rather firm; stem short, equal; asci cylindraceo-clavate; sporidia 8, fusiform, 7—10 × 3μ; paraphyses very slenderly filiform.

Peziza nitidula—B. and Br., "Ann. Nat. Hist.," No. 570; Cooke, "Handbk.," No. 2091.

On dead leaves of *Aira cæspitosa*. Winter.

"Scattered; cup slightly concave, at first subhemispherical, then nearly plane, often irregular, covered with glistening mealy particles. Allied to the preceding (*Peziza cacaliæ*), but distinguished by its uniformly mealy surface, irregular shape, and depressed, not clavate, cup" (B. and Br.).

Name—*Nitidus*, shining; somewhat shining.

Batheaston, near Bath! (Mr. C. E. Broome).

44. *Hymenoscypha electrina.* Phil. and Plow.

Cup subhemispherical, glabrous, shining, amber-colour, when moist subgelatinous; stem rather short, firm, darker at the base; asci narrowly clavate, pointed at the summit; sporidia 8, fusiform, 5 × 1μ.

Peziza electrina—Phil. and Plow., "Grevillea," viii. p. 155; "Scott. Nat.," i. (new ser.), 86.

On pine leaves, intermixed with *Dacrymyces succineus*, Fries, of which it is the ascigerous stage.

Cup 100 to 500μ broad, stem not quite as long as the breadth of cup.

Name—*Electrum*, amber; from the colour.

Forres, N.B.! (Mr. C. B. Plowright).

D. SPORIDIA PYRIFORM OR RENIFORM.

(*a*) *On fruit.*

45. *Hymenoscypha amenti.* (Batsch.)

Cup concave, then plane, at length convex, firm, white, becoming greyish-brown; stem short, enlarged upwards; asci cylindraceo-clavate; sporidia 8, subpyriform, 8 × 3μ; paraphyses slenderly filiform.

Peziza amenti—Batsch, "Cont.," i. p. 211, f. 148; Pers., "Myco. Eur.," p. 314; Fries, "Sys. Myco.," ii. p. 127; Karst., "Pez. et Ascob.," p. 31; and "Mon. Pez.," p. 140. *Helotium amenti*—Karst., "Myco. Fenn.," p. 128; Gill., "Champ.," p. 158, c. i.

Exs.—Rabh., "Fung. Eur.," ed. ii. 809 and 1621; Karst., "Fung. Fenn.," 27; Phil., "Elv. Brit.," 123; Roumg., "Fung. Gal.," 649.

On dead catkins of willow in damp places.

Cup 200 to 500μ broad; height, including stem, 200 to 600μ. A minute species, easily recognized by the pyriform sporidia.

Name—*Amentum*, a catkin; from the habitat.

Wrekin, Salop!

(*b*) *On leaves.*

46. *Hymenoscypha renisporum.* (Ellis.)

Stipitate, concave, at length plane, pale cinnamon or brownish-yellow; stem equal, slender, darker below; asci cylindraceo-clavate; sporidia 8, biseriate, reniform, 10μ long, 5μ in the broadest part, biguttulate; paraphyses filiform, rather stout.

Helotium renisporum—Ellis in Cooke's "Synop. Disc. U. S." *Ombrophila Sydowiana*—Rehm in Exs. Syd., "Mycoth. Mar.," 666. *Peziza recedens*—Phil. in Herb. *Ciboria Sydowiana*—Rehm in "Asco.," No. 802.

Exs.—Rehm, "Asco.," *l. c.*; Syd., "Mycoth. Mar.," *l. c.*

On decaying leaves of oak, etc., chiefly on the petioles and ribs. Autumn.

Cup ½ to 1 line broad; stem rather long. The

margin in the British specimens is subfimbriate, resembling *H. petiolorum*, Rob., to which, indeed, it is closely allied.

Name—*Renes*, the kidneys, σπόρος, a seed; from the shape of the sporidia.

Nescliff, near Shrewsbury!

E. SPORIDIA CYLINDRICAL.

(*a*) *On dead wood.*

47. *Hymenoscypha sordida.* (Fckl.)

Gregarious, stipitate, glabrous, dirty white, patelliform, marginate, margin becoming crisped and lacerated, involute; stem firm; hymenium becoming reddish; asci cylindraceo-clavate; sporidia 8, cylindrical, curved, hyaline, 6—10 × 1—2μ.

Pezizella sordida—Fckl., "Symb. Myco.," p. 299· "Scott. Nat.," vi. 163.

Exs.—Fckl., "F. Rh.," No. 2078.

On broome, *Rosa canina* (Fckl.).

Cup ¼ to ½ a line broad, thin, when moist soft; stem very short.

Name—*Sordidus*, dirty; dingy in colour.

Forres, N.B.! (Rev. Dr. Keith).

(*b*) *On root-fibres.*

48. *Hymenoscypha rhizophila.* (Fckl.)

Cup stipitate, at first infundibuliform, then plane, immarginate, whitish furfuraceous; hymenium vitelline; stem rather long; asci linear, attenuated at each end; sporidia 8, cylindrical, straight, hyaline, 12 × 2μ.

Helotium rhizophilum (Fckl.)—Cooke, "Handbk.," No. 2155; Gill., "Champ.," p. 156. *Ciboria rhizophila*—Fckl., "Symb. Myco.," p. 312.

Exs.—Fckl., "F. Rh.," No. 1598.

On rhizomes of grass. May.

Cup 1 to 1½ lines broad.

Name—ῥίζα, a root, φίλος, loving; found on roots.
Shere, Surrey (Dr. Capron).

(*c*) *On carex stems.*

49. *Hymenoscypha eburnea.* (Rob.)

Cup hemispherical, ivory-white, margin denticulate, subpruinose; stem short, incurved; asci cylindraceo-clavate; sporidia 8, narrowly cylindrical, curved, 5 × 1μ.

Peziza eburnea—Rob. in Desm., "Crypt. Fr.," ed. i. No. 2004, ed. ii. No. 1604; Desm., "Ann. Sc. Nat.," 1851, vol. xvi. 323. *Helotium eburneum*—Gill., "Champ.," p. 160.

Exs.—Desm., "Crypt. Fr.," *l. c.*

On *Carex Pendula.* Autumn and winter.

Cup 400μ broad; stem 200μ long; scattered or gregarious; glabrous except the margin, which is slightly pruinose. M. Roberge found it on *Holcus* and *Dactylis.*

Name—*Eburneus*, made of ivory.

Forres, N.B.! (Rev. Dr. Keith).

(*d*) *On Fruit.*

50. *Hymenoscypha cacaliæ.* (Pers.)

Cup turbinate or subhemispherical, brownish, glabrous, firm, mouth subconnivent, paler; stem rather long, slightly thickened; asci subcylindrical; sporidia 8, narrowly cylindrical, somewhat curved, 8 × 1μ.

Peziza cacaliæ—Pers., "Myco. Eur.," p. 285; Fries, "Sys. Myco.," ii. p. 122; Fckl., "Symb. Myco.," p. 307; B. and Br., "Ann. Nat. Hist.," No. 569; Cooke, "Handbk.," No. 2090. *Phialea cacaliæ*—Gill., "Champ.," p. 104.

Exs.—Fckl., "F. Rh.," 2283; Berk. in Kew Herb.

On seed-vessels of the common stock, and herbaceous stems.

Cup about 500μ broad; stem about 300μ long, but sometimes nearly absent.

The dimensions of sporidia given above are from Fuckel.

Name—*Cacalia*, an herb; from its habitat.
Guernsey, in Herb. Berk.!

GENUS IV.—CHLOROSPLENIUM. Fries, "Summa Veg. Scan.," p. 356.

Cup stipitate, concave or plane, glabrous, waxy, tough; æruginous green or olivaceous. (Plate V. fig. 28.)

Name—χλωρός, green, σπλὴν, the spleen; from the colour.

Readily distinguished by their dark colour, olivaceous or verdigris-green. They are often irregular in form, and the margin often repand. *C. æruginosus* stains the wood on which it grows with its green mycelium.

ARRANGEMENT OF THE SPECIES.

A. Sporidia elliptic .. .. species 1
B. Sporidia fusiform .. .. „ 2

A. SPORIDIA ELLIPTIC.

1. *Chlorosplenium versiforme.* (Pers.)

Gregarious, stipitate or subsessile; cup concave, becoming plane or convex, difformed or contorted; hymenium yellowish olive or fuliginous brown; stem slender, often absent; asci cylindrical; sporidia 8, elliptic, 8 × 4μ; paraphyses filiform, slender.

Peziza versiformis—Pers., "Icon. et Descr.," p. 25, t. 7, f. 7; "Syn. Fung.," p. 647; "Myco. Eur.," p. 243; A. and S., p. 314 (*b. livida*); Fries, "Sys. Myco.," ii. p. 131; Karst., "Mon. Pez.," p. 141. *Helotium versiforme*—Berk., "Outl.," p. 372, t. 2, f. 6; Cooke, "Handbk.," No. 2152; Gill., "Champ.," p. 158. *Chlorosplenium versiforme*—De Not., "Disc.," p. 22; Karst., "Myco. Fenn.," p. 102. *Peziza bulgarioides*—Rabh., "Hedw.," 1870, p. 136.

Exs.—Rabh., "Fung. Eur.," 1008, 1311; Berk., "Brit. Fung.," 274; Thum., "Mycoth. Univ.," 217; Berk., 274; Ellis, "N. A. Fungi," 988.

On fir-cones and ash-stumps.

Cup 5 lines broad; entire height about the same.

Name—*Verto*, to turn, *forma*, shape; variable in form.

Apethorpe! (Rev. M. J. Berkeley).

B. SPORIDIA FUSIFORM.

2. *Chlorosplenium æruginosum.* ("Flo. Dan.")

Cup shortly stipitate or sessile, head turbinate, then expanded, subflexuose, verdigris-green; hymenium paler; stem short, rather stout; asci cylindraceo-clavate; sporidia 8, fusiform, 10—14 × 3·5—4·5μ; paraphyses filiform, slender. (Plate V. fig. 28.)

Peziza æruginosa—"Flo. Dan.," t. 1260, f. 1; Pers., "Syn. Fung.," p. 617; and "Myco. Eur.," i. p. 219; Fries, "Sys. Myco.," ii. p. 130; "Eng. Flo.," v. p. 202; "Grev.," t. 241; Sow., 347; "Flo. Dan.," 534, 1260, f. 1; Nyl., "Pez. Fenn.," p. 41; Karst., "Mon. Pez.," 142. *Helotium æruginosum*—Fries, "Summa Veg. Scan.," p. 353; Fckl., "Symb. Myco.," p. 314; Cooke, "Handbk.," No. 2131; Berk., "Outl.," 372; Gill., "Champ.," p. 151, c. i. *Chlorosplenium æruginosum*—Tul., "Select. Fung. Carp.," iii. p. 187.

Exs.—Berk., No. 281; Karst., Nos. 151, 459; Rav., v. No. 40; Fckl., "F. Rh.," 1158; Phil., "Elv. Brit.," No. 86; Ellis, "N. A. Fung.," 987; Roumg., "Fung. Gal.," 1858; Cooke, "Fung. Brit.," ed. ii. 389.

On fallen oak branches, staining the wood on which it grows, for a considerable depth, of a deep verdigris-green, the wood so stained being employed as "green oak" in the manufacture of Tunbridge ware. The fully developed cups are much more rare than the green mycelioid state.

The cups are ½ to 2½ lines broad; the stem is very variable in length, and often carries more than one cup. The margin is often lobed, though generally regular.

Name—*Ærugo*, verdigris; from the colour.

Woods near Ludlow!

GENUS V.—BELONIDIUM. Mont. and Dur., "Flo. Alger."

Cup sessile or shortly stipitate, cyathiform or infundibuliform, mouth compressed when dry; cells of the excipulum elongate; texture firm; somewhat waxy; asci 8-spored, paraphyses filiform; sporidia terete, obtuse or acute at the ends, septate, hyaline. (Plate V. fig. 29.)

Name—βελονίς, a little needle; from the shape of the sporidia.

ARRANGEMENT OF THE SPECIES.

A. Stipitate or substipitate.
  (*a*) Sporidia fusiform .. .. .. species 1, 2
B. Sessile.
  (*a*) Sporidia elliptic or oblong-elliptic „ 3
  (*b*) Sporidia fusiform .. .. .. „ 4, 5
  (*c*) Sporidia filiform .. .. .. „ 6, 7

KEY TO THE SPECIES.

	Growing on wood	1
	Growing on herbaceous stems	2
1.	Hymenium pallid-white, substipitate	*minutissimum.*
	Hymenium pallid-ochraceous, sessile	*ventosum.*
2.	Hymenium dingy-black, externally brown.. ..	*lacustre.*
	Hymenium pallid or whitish	3
	Hymenium pallid or testaceous	*culmicolum.*
3.	Externally brown; sporidia fusiform, 3-septate ..	*pullum.*
	Externally blackish; sporidia multiseptate ..	*excelsius.*
	Externally horn-colour; sporidia filiform	*filisporum.*

A. STIPITATE OR SUBSTIPITATE.

(*a*) *Sporidia fusiform.*

1. *Belonidium culmicolum.* (Desm.)

Cup cyathiform or almost campanulate, pallid or rosy white; the mouth, when dry, contracted, plicate, nearly closed; hymenium pallid or testaceous, or rosy; stem very short, stout, or absent; asci cylindraceo-clavate; sporidia ℰ, fusiform, straight or curved, 3-septate, 23—28 × 3—4μ; paraphyses filiform, sometimes enlarged slightly at the apices. (Plate V. fig. 29.)

Peziza culmicola—Desm., "Ann. Sc. Nat.," 1836, p 243. *Belonidium vexatum*—De Not., "Disc.," p. 26

Peziza vexata—Karst., "Mon. Pez.," p. 139; "Myco. Fenn.," p. 163. *Phialea culmicola*—Gill., "Champ.," 103.

Exs.—Rabh., "Fung. Eur.," ed. ii. 519 and 221; Karst., "Fung. Fenn.," 545; Phil., "Elv. Brit.," 116; Desm., "Crypt. Fr.," 282, ed. ii. No. 28.

On dead culms of *Graminiæ*.

Cup about 500μ broad. The margin is usually fimbriated, the cup fibroso-striate, the texture waxy.

Name—*Culmus*, corn-straw, *colo*, to inhabit.

Forres, N.B.! (Rev. Dr. Keith). Lynn! (Mr. C. B. Plowright). Shelton Rough, near Shrewsbury!

2. *Belonidium minutissimum.* (Batsch.)

Cup at first clavate or obovate, then cupulate, pallid-white, glabrous; stem very short, attenuated at the base; asci clavate; sporidia 8, oblong or oblong-fusiform, curved, 4-septate, constricted at the septa, 30 × 6μ; paraphyses filiform.

Peziza minutissima—Batsch, f. 143; B. and Br., "Ann. Nat. Hist.," No. 1071, t. 15, f. 21; Cooke, "Handbk.," No. 2095. *P. Helminthosporii*—Blox. in Herb. Kew.

On *Helminthosporia*. Winter.

Very minute.

"Pallid; cups clavate, substipitate; margin incurved; sporidia ·0014 inch (40μ) long, quadriseptate. Interesting from the marked character afforded by the sporidia" (B. and Br., *l. c.*).

Name—*Minutus*, minute; very minute.

Twycross! (Rev. A. Bloxam). Batheaston, near Bath (Mr. C. E. Broome).

B. SESSILE.

(*a*) *Sporidia elliptic or oblong.*

3. *Belonidium lacustre.* (Fries.)

Sessile, applanate, orbicular, soft, waxy, plano-convex, dingy blackish; asci clavate; sporidia 8, elliptic or oblong-elliptic, at length 1 to 3-septate; paraphyses filiform.

Peziza lacustris—Fries, "Sys. Myco.," ii. p. 143; Nyl., "Pez. Fenn.," p. 62; Cooke, "Handbk.," No. 2101. *Niptera lacustris*—Fries, "Summa Veg. Scan.," p. 359; De Not. in "Comm. Soc. Critt. Ital.," 5, 1863, p. 375; non Fckl., "Symb. Myco.," p. 292; nec Curr., "Linn. Trans.," vol. 25, p. 153. *Patellaria aquatica*—Curr., "Linn. Trans.," vol. 25, p. 155, t. 25, f. 23; "Scott. Nat.," vi. 163. *Mollisia lacustris*—Gill., "Champ.," p. 130.

Exs.—Fries, "Scl. Suec.," No. 173; Rabh., "Fung. Eur.," No. 231.

On culms of *Scirpus, Arundo,* etc.

When young adnate, plano-convex, ½ a line broad, even, smooth, black, then dilated, plane, free beneath except the central point of adhesion, externally sooty black, quite black when dry; margin at first connivent, then open, inflexed, entire; disc turgid, soft, when moist dingy, when dry black (Fries, *l. c.*).

After comparing the original specimen of *Patellaria aquatica* (Curr.) with an original specimen of Fries, "Scl. Suec.," No. 173, in the Kew Herbarium, there can be no possible doubt of their identity.

Name—*Lacus*, a lake; from the habitat.

St. George's Hill, Weybridge! and Paul's Cray Common (Mr. F. Currey).

(*b*) *Sporidia fusiform.*

4. *Belonidium excelsius.* (Karst.)

Cups gregarious, convex, livid or cinereous white, or pallid; when dry concave, the same colour or becoming blackish; hymenium whitish or pallid; asci fusiform-clavate; sporidia 8, elongate-fusiform, ends sub-acute, multiguttulate, becoming multiseptate, 50—65 × 4—5μ; paraphyses filiform, branched.

Peziza excelsior—Karst., "Mon. Pez.," p. 165. *Mollisea excelsior*—Karst., "Myco. Fenn.," p. 199; "Grevillea," viii. p. 102; Steven., "Myco. Scot.," p. 326.

On dead culms of *Arundo.* August.

Cup ¼ to ½ a line broad. This has a pseudo-

parenchyma composed of subglobose cells below the margin, and oblong cells near and at the margin, which are umber-brown.

Name—*Excelsus*, high, tall; from its very large sporidia.

Grantown, N.B.! (Rev. Dr. Keith).

5. *Belonidium ventosum.* (Karst.)

Cups gregarious, from subspherical-applanate becoming convex, at first totally cinereous, then cinereous-black; hymenium pallid-ochraceous, or becoming totally cinereous-black; margin elevated, very slightly flexuose, obtuse; asci cylindraceo-clavate or subcylindrical; sporidia 8, elongate-fusiform, often curved; 2 to 4-guttulate, or spuriously and slenderly 3-septate, 10—20 × 2—3·5μ; paraphyses filiform.

Peziza ventosa—Karst., "Mon. Pez.," p. 157; Phil. and Plow., "Grevillea," viii. p. 103; Steven., "Myco. Scot.," p. 326. *Mollisea ventosa*—Karst., "Myco. Fenn.," p. 188.

Exs.—Karst., "Fung. Fenn.," 733; Phil., "Elv. Brit.," 173.

On willow. Spring.

Cup $\frac{1}{4}$ to 1 line broad.

Name—*Ventosus*, inconstant; from its inconstant colour.

Forres, N.B.! (Rev. Dr. Keith). Near Shrewsbury!

(*c*) *Sporidia filiform.*

6. *Belonidium pullum.* Phil. and Keith.

Scattered, sessile, at first hemispherical, then expanded, nearly plane; externally brown; hymenium watery cinereous; asci cylindraceo-clavate; sporidia fusiform, 4 to 6-guttulate, becoming 3-septate, 25—30 × 3—5μ; paraphyses linear, slender.

Belonidium pullum—Phil. and Keith in "Grevillea," vi. p. 75.

On *Poa* and *Typha*. Autumn.

Cup $\frac{1}{2}$ a line broad. The colour varies from pale

cinereous brown to chocolate-brown, and the disc pale watery cinereous or brownish; the margin is usually erect; the sporidia in some of the specimens are narrowly fusiform, in others broader and more obtuse.

It is very near *Belonidium lacustre* (Fries) and *B. Scirpi* (Rabh.), but is distinguished from both by the sporidia.

Name—*Pullus*, blackish.

Forres, N.B.! (Rev. Dr. Keith). Near Bristol! (Mr. C. Bucknall). Near Shrewsbury!

7. *Belonidium filisporum.* (Cooke.)

Cups scattered or subgregarious, soft, hemispherical, then flattened; externally horn-colour or tawny, brown when dry, connivent; hymenium pallid, dirty white, slightly concave; asci cylindrical, clavate; sporidia filiform, straight or curved, triseptate, 35 × 3μ; paraphyses filiform, simple.

Peziza (*Mollisea*) *filispora*—Cooke in "Grevillea," iii. p. 66.

On sheaths of grass.

Allied to *Peziza excelsior*, Karst. (Cooke).

Name—*Filum*, a thread, σπόρος, seed; from the slender sporidia.

GENUS VI.—HELOTIUM. Fries (in part).

Disc always open, at first punctiform, then dilated, plane or convex, waxy, naked, sessile, or with a short stout stem; asci cylindrical or subclavate; sporidia 8, elliptic, fusiform, clavate, oblong, or cylindrical. (Plate V. figs. 30, 31.)

Name—ἥλος, a nail.

Distinguished from *Hymenoscypha* by the shorter and thicker or absent stem, and the disc being open from the first; from *Belonidium* by the simple or at most 2-septate sporidia; and from *Chlorosplenium* by the colour.

Mostly yellow or brown, rarely white; epiphytal.

Arrangement of the Species.

A. Stipitate or substipitate.
- (*a*) Sporidia elliptic.
  - (*α*) On wood .. .. .. species 1
  - (*β*) On herbaceous plants .. „ 2, 3
  - (*γ*) On catkins .. .. .. „ 4
- (*b*) Sporidia oblong-elliptic.
  - (*α*) On wood .. .. .. „ 5–11
- (*c*) Sporidia fusiform or clavate.
  - (*α*) On wood .. .. .. „ 12–14
  - (*β*) On herbaceous stems.. .. „ 15, 16
  - (*γ*) On leaves and fern-fronds .. „ 17–22
- (*d*) Sporidia linear.
  - (*α*) On wood .. .. .. „ 23

B. Sessile.
- (*a*) Sporidia oblong or oblong-elliptic.
  - (*α*) On wood .. .. .. „ 24, 25
- (*b*) Sporidia fusiform or oblong-fusiform.
  - (*α*) On herbaceous stems or twigs „ 26–28
  - (*β*) On cones .. .. .. „ 29
- (*c*) Sporidia cylindrical.
  - (*α*) On wood .. .. .. „ 30
- (*d*) Sporidia doubtful .. .. .. „ 31–35

Key to the Species.

A. STIPITATE.

Hymenium brown 1
Hymenium yellow 2
Hymenium white 3
Hymenium dark green .. .. *Agaricinum.*

1.
- Hymenium honey-coloured; stem cylindrical, slender *melleum.*
- Hymenium pale umber; stem stout.. .. .. *subsessile.*
- Hymenium ferruginuous; externally paler.. .. *ferrugineum.*
- Hymenium pale brick-red; stem delicately villous *sublateritium.*
- Hymenium testaceous or ochery pallid; stem equal, paler .. .. *salicellum.*
- Hymenium pale yellowish-brown: on *Marchantia* *Marchantiæ.*

2.
- Hymenium bright yellow; externally pallid .. *flavum.*
- Hymenium lemon-yellow; externally the same colour .. .. *citrinum.*
- Hymenium pale yellow; externally pallid: on dead leaves .. .. *sulphuratum.*
- Hymenium pale yellow; margin paler: on dead wood *pallescens.*
- Hymenium pale yellow; margin repand: on *Spiræa* *repandum.*
- Hymenium pale yellow; margin acute, repand: on leaves .. .. *immutabile.*
- Hymenium yellow, dark brown beneath; stem stout *fibuliforme.*
- Hymenium yellow; margin even, orbicular; stem papilliform .. .. *lenticulare.*
- Hymenium pallid-ochraceous; stem nearly obsolete: on grass .. .. *graminium.*
- Hymenium pallid-ochraceous: on leaves .. .. *epiphyllum.*
- Hymenium egg-yellow; margin paler, repand .. *ilicis.*

3.	Stem slender, very short: on catkins	*alniellum.*
	Stem obconic; margin obtuse; on roots	*politum.*
	Stem obconic; cup semitransparent and repand: on twigs	*pileatum.*
	Stem obconic: on wood	*imberbe.*
	Stem extremely short, thick, at times obsolete: on wood	*fagineum.*
	Stem extremely short; cup hyaline: on leaves	*phyllophilum.*

B. SESSILE.

	Hymenium pale brown, sprinkled with shining particles	*ochraceum.*
	Hymenium bay-brown	*badium.*
	Hymenium yellow	1
	Hymenium white	2
1	Hymenium egg-yellow; margin raised, paler	*claroflavum.*
	Hymenium yellow; margin crenulate	*punctiforme.*
	Hymenium pale yellow: on cones	*conigenum.*
	Hymenium lutescent: on *Humulus*	*Humuli.*
2.	Hymenium chalk-white, pruinose: on dead wood	*pruinosum.*
	Hymenium white, not pruinose: on herbaceous stems	*herbarum.*
	Hymenium pallid, externally darker: on *Cytisus*	*scoparium.*
	Hymenium pallid; flesh watery consistence: on mosses	*phascoïdes*

A. STIPITATE OR SUBSTIPITATE.

(*a*) *Sporidia elliptic.*

(*a*) *On wood.*

1. *Helotium ferrugineum.* (Schum.)

Substipitate, obconic; hymenium concave, ferruginous-yellow; externally, as well as the tumid margin, pallid-yellow; asci cylindraceo-clavate; sporidia 8, elliptic, subfusiform or clavate, 2-guttulate, 10—13 × 3—5μ; paraphyses filiform, slender. (Plate V. fig. 30.)

Helotium ferrugineum—Berk., "Ann. Nat. Hist.," No. 962; Cooke, "Handbk.," No. 2161; Gill., "Champ.," p. 152. *Peziza ferruginea*—Schum., "Saell.," p. 412; Fries, "Sys. Myco.," ii. p. 134; Bull., t. 300. Var. *P. disciformis*—Hoff., "Icon. An.," t. 16, f. 1–5.

On dead oak twigs, etc. Autumn.

Cups gregarious or scattered, about ¼ to ½ a line broad; at first concave, then plane, at length convex; flesh tinted brown; margin lighter in colour than the disc,

which is ferruginous; sporidia very variable in size and shape.

Nearly allied to *H. calyculus*.

Name—*Ferrugo*, iron rust; from the colour.

Houghton! (Rev. M. J. Berkeley).

(β) *On herbaceous stems and roots.*

2. *Helotium graminium* (nov. sp.).

Stipitate; cup plane or convex, glabrous, pallid-ochraceous; stem short, rather stout, often slightly attenuated in the centre, expanding into the base of the cup; asci subclavate; sporidia 8, elliptic, with one or two guttulæ, 8—11 × 4—5μ; paraphyses slenderly filiform.

On grass. Spring.

Cups ½ to 1¼ of a line broad, about the same high; margin obtuse.

Name—*Gramineus*, of or belonging to grass; from its habitat.

King's Lynn! (Mr. C. B. Plowright).

3. *Helotium politum* (nov. sp.).

Substipitate, plane or slightly concave, glabrous, white; margin even, obtuse; the short stem gradually enlarged from the base upwards into the cup; asci cylindraceo-clavate; sporidia 8, elliptic, ends nearly pointed, 10—13 × 4—5μ.

On roots of some small plant under the surface of the soil in a plantation. November.

Cup ¼ to ¾ of a line broad, the short stem tapering downwards to a point. When moist, shining.

Name—*Politus*, polished.

Shelton Rough, near Shrewsbury!

(γ) *On catkins.*

4. *Helotium alniellum.* (Nyl.).

Cup shortly stipitate, plane, white or pallid-white; stem slender, short or very short; asci cylindraceo-

clavate; sporidia 8, oblong or fusiform, 3-guttulate, 6—12 × 2—4μ; paraphyses scarce.

Peziza alniella—Nyl., "Pez. Fenn.," p. 45; Karst., "Mon. Pez.," p. 140. *Helotium alniellum*—Karst., "Myco. Fenn.," p. 129. *Helotium Grenseri*—Auersw. in Rabh., "Fung. Eur.," ed. ii. No. 1122; "Scott. Nat.," vi. 124.

Exs.—Rabh., "Fung. Eur.," ed. ii. No. 1122.

On catkins of *Alnus glutinosus*.

Cup $\frac{1}{4}$ to $\frac{1}{2}$ a line broad, sessile or subsessile, pallid-white or yellowish.

Name—*Alnus*, the generic name of the alder-tree.

Forres, N.B.! (Dr. Keith). Scarborough! (Mr. Massee).

(*b*) *Sporidia oblong-elliptic.*

(*a*) *On wood.*

5. *Helotium fibuliforme.* (Bolt.)

Cup stipitate, convex, yellow, fleshy, rather firm; dark brown beneath, as well as the short, thick, subvillose stem; asci cylindraceo-clavate; sporidia oblong or fusiform, 2-guttulate, 9—12 × 2—4μ.

Helvella fibuliformis—Bolt., t. 176. *Peziza fibuliformis*—Fries, "Sys. Myco.," ii. p. 155; "Eng. Flo.," v. p. 207. *Helotium fibuliforme*—Berk., "Outl.," p. 371; Cooke, "Handbk.," No. 2126; Gill., "Champ.," p. 158.

On sticks of elm in water; also on ash in like situations.

Cup 1$\frac{1}{2}$ to 3 lines broad, about 2$\frac{1}{2}$ lines high.

It consists of a little hard pileus, smooth, slippery, and of a yellow-ochre colour on the upper side. It is supported by a round stem, a line in length; of a solid and firm consistence; and, together with the under side of the pileus, is of a dusky black (Bolt., *l. c.*).

Name—*Fibula*, a button, *forma*, shape.

Bell Bank, near Bingley (Bolton). Bettws-y-Coed!

6. *Helotium flavum.* (Klotzsch.)

Gregarious, stipitate; cup at first subpyriform, then expanded; hymenium bright yellow; externally pallid;

glabrous stem, rather short, tapering to the base; asci cylindraceo-clavate; sporidia 8, elliptic, rarely subclavate, 20 × 4—5μ; paraphyses filiform, slender.

Peziza flava—Klotzsch in Kew Herb.!

On decorticated wood.

Cup about $\frac{1}{4}$ to $\frac{1}{2}$ a line broad.

Name—*Flavus*, yellow.

7. *Helotium lenticulare.* (Bull.)

Cup substipitate or sessile, fleshy, firm, convex, adpressed to the wood, luteus; stem papillæform, often nigrescent; asci cylindraceo-clavate; sporidia 8, oblong, oblong-elliptic, or clavate, 10—15 × 3—4·5μ.

Helotium lenticulare—Berk., "Outl.," p. 372; "Eng. Flo.," v. p. 203; Cooke, "Handbk.," No. 2147; Fckl., "Symb. Myco.," p. 315; Gill., "Champ.," p. 154. *Peziza lenticularis*—Bull., t. 300, f. A, C; "Flo. Dan.," t. 1294, f. 1. *P. aurea*—Sow., t. 150. *H. nigripes*—Schum., "Saell.," p. 412; Pers., "Myco. Eur.," p. 544.

On dead wood. Autumn.

About 1 line broad, nearly sessile, glabrous, bright yellow, convex.

The sporidia were derived from Sowerby's original specimen in Herb. Berk.

Name—*Lenticularis*, form of a little lens.

8. *Helotium citrinum.* (Hedw.)

Cup shortly stipitate or sessile, plano-concave, lemon-yellow, waxy, firm, glabrous; asci cylindraceo-clavate; sporidia 8, fusiform or oblong-elliptic, 2 to 3-guttulate, often pseudo-uniseptate, 7—15 × 3μ; paraphyses filiform.

Octospora citrina—Hedw., "Mus. Frond.," ii. p. 28. *Helotium citrinum*—Fries, "Summa Veg. Scan.," p. 355; Berk., "Outl.," p. 372; Cooke, "Handbk.," No. 2145; Karst., "Myco. Fenn.," p. 120. *Peziza citrina*—Batsch, fig. 208; Pers., "Syn. Fung.," p. 663; Fries, "Sys. Myco.," ii. p. 131; Karst., "Pez. et Ascob.," p. 32; "Mon. Pez.," p. 143; Nyl., "Pez. Fenn.," p. 43; Fckl., "Symb. Myco.," p. 315. *Phialea citrina*—Gill., "Champ.," p. 109.

Exs.—Rabh., "Fung. Eur.," No. 29; Karst., "Fung. Fenn.," No. 80 and 458; Moug. and Nest., No. 784; Phil., "Elv. Brit.," No. 41; Rehm, "Asco.," 704; Roumg., "Fung. Gal.," 446, 650.

On dead stumps and naked wood. Autumn.

Cup from ½ to 1 line broad. Gregarious or crowded; clear citrine-yellow.

Name—*Citrus*, lemon; lemon-yellow.

Forres, N.B.! (Rev. Dr. Keith). Penicuick, near Edinburgh! Cawdor, N.B.! Leigh Woods, near Bristol (Mr. Cedric Bucknall). Forden, Montgomeryshire! (Rev. J. E. Vize). Downton, Salop! Wrekin, Salop! Trefrew, North Wales! Clungunford, Salop!

9. *Helotium pallescens.* (Pers.)

Cup shortly stipitate, concave or plane, waxy, pale yellow or whitish, inclining to pallid, glabrous; stem short, rather stout, or absent; asci cylindraceo-clavate; sporidia elliptic or oblong, pseudo-uniseptate, 8—11 × 2—4μ; paraphyses filiform, slender.

Helotium pallescens—Fries, "Summa Veg. Scan.," p. 355; Cooke, "Handbk.," No. 2146; Karst., "Myco. Fenn.," p. 114 (?); Gill., "Champ.," p. 109. *Peziza pallescens*—Pers., "Obs.," p. 85; "Syn. Fung.," p. 664; Fries, "Sys. Myco.," ii. p. 132; "Eng. Flo.," p. 203.

Exs.—Karst., "Fung. Fenn.," 640.

On dead stumps. Autumn.

Cup about ½ to 1 line broad, nearly sessile, firm, waxy texture, margin paler than the disc, and regular.

Name—*Pallesco*, to grow pale.

Leigh Woods, near Bristol (Mr. Cedric Bucknall). North Wootton! (Mr. C. B. Plowright). Forres, N.B.! (Rev. Dr. Keith). Near Shrewsbury!

10. *Helotium subsessile.* Schum.

Cups very shortly stipitate or sessile, plano-convex, pale umber, externally pallid; stem umber-brown at the base; asci clavate; sporidia 8, oblong, sublanceolate, 2 to 3-nucleate.

Helotium subsessile—Schum., "Saell.," p. 415; Berk., "Outl.," p. 372; Cooke, "Handbk.," No. 2153. *Peziza helotioides*—Fries, "Sys. Myco.," ii. p. 135; B. and Br., "Ann. Nat. Hist.," No. 573; "Flo. Dan.," t. 1855, f. 3.

On dead branches. October.

Of a dull ochre rather than umber. The stem is very thick, obconical, and merely a prolongation of the pileus; the hymenium convex (Berkeley). No specimen of this exists in Mr. Berkeley's herbarium.

Name—*Sub*, somewhat, *sessilis*, sitting; nearly stemless.

King's Cliffe (Rev. M. J. Berkeley).

11. *Helotium fagineum.* (Pers.)

Cup shortly stipitate or sessile, plane or convex, whitish or yellowish, glabrous, waxy, firm; stem short, thick, or absent; asci cylindraceo-clavate; sporidia 8, oblong, or oblong-elliptic, 13 × 4μ; paraphyses scarce.

Helotium fagineum—Fries, "Summa Veg. Scan.," p. 356; Berk., "Outl.," p. 372; Cooke, "Handbk.," No. 2158; Fckl., "Symb. Myco.," p. 315. *Peziza faginea*—Pers., "Tent. Disp. Meth.," p. 34; "Myco. Eur.," p. 296; A. and S., p. 334; Fries, "Sys. Myco.," ii. p. 136; Scop., "Ann.," iv. t. 2, f. 3; Johns., "Flo. Ber.," ii. p. 150; "Eng. Flo.," v. p. 204; "Ann. Nat. Hist.," No. 963*.

Exs.—Fckl., "F. Rh.," 1146.

On beech-mast. Autumn.

Cup about ½ to 1 line broad; gregarious or crowded.

Name—*Fagus*, beech; growing on beech.

Near Bristol (Mr. Cedric Bucknall). Wrekin, Salop! Glamis (Rev. J. Fergusson).

(*a*) *Sporidia fusiform or clavate.*

(*a*) *On wood.*

12. *Helotium salicellum.* Fries.

Cup shortly stipitate, plane, adpressed, orbicular, firm, testaceous or ochery pallid; stem equal, paler; asci cylindraceo-clavate; sporidia 8, elongate-fusiform,

straight or slightly curved, 2 to 4-guttulate, or spuriously 1 to 3-septate, 25—30 × 5—7μ; paraphyses filiform, stout.

Helotium salicellum—Fries, "Summa Veg. Scan.," p. 356; Berk., "Outl.," p. 372; Cooke, "Handbk.," No. 2151; Gill., "Champ.," p. 157. *Peziza salicella*—Fries, "Sys. Myco.," ii. p. 133; B. and Br., "Ann. Nat. Hist.," No. 573*; Karst., "Pez. et Ascob.," p. 34; "Mon. Pez.," p. 134; Nyl., "Pez. Fenn.," p. 45.

Exs.—Rabh., "Fung. Eur.," 1707; Cooke, "Fung. Brit.," 558.

On branches of *Salix*. August to October.

Cup ½ to 1 line broad. The measurement of sporidia is from Drs. Nylander and Karsten.

Name—*Salix*, a willow; growing on a willow.

Neatishead (Dr. M. C. Cooke). Nescliffe, Salop! Shrewsbury!

13. *Helotium melleum*. B. and Br.

Pallid honey-colour; stem short, cylindrical; cups plane, flexuose; margin elevated, inflexed; asci elongated, lanceolate; sporidia biseriate, fusiform, curved on one side, multiguttulate, 30μ.

Helotium melleum—B. and Br., "Ann. Nat. Hist.," No. 1487; "Grevillea," iii. p. 122.

On rotten wood.

"About a line broad; stem half as much high. Allied to *H. luteolum*" (B. and Br.).

Name—*Melleus*, like honey; the colour of honey.

New Pitsligo (Rev. J. Fergusson).

14. *Helotium pileatum*. Karst.

Cup stipitate, slightly concave, becoming convex; margin deflexed, frequently repando-lobate, whitish, livid, or pallid with a bluish tinge; stem short, thickened upwards; asci cylindraceo-clavate; sporidia 8, oblong-elliptic or oblong-fusiform, becoming pseudo-uniseptate, 25—35 × 5—7μ; paraphyses filiform, stoutish, granular within.

Helotium pileatum—Karst., "Myco. Fenn.," p. 130.

On dead twigs, buried under the soil in very damp places. Autumn.

Cups about 1 line broad, about the same in height; Scattered, glabrous, semitransparent, but firm. This has the largest sporidia of any British species I am acquainted with.

Name—*Pileatus*, wearing a cap; from the capitate head.

(β) *On herbaceous stems.*

15. *Helotium sublateritium.* B. and Br.

Pallid, brick-red; stem short, cylindrical, delicately whitish villose, becoming smooth; cups plane, veined beneath; margin elevated; asci linear; sporidia uniseriate, shortly fusiform, biguttate, 25 × 5μ.

Helotium sublateritium—B. and Br., "Ann. Nat. Hist.," No. 1488; "Grevillea," iii. p. 122.

On stems of herbaceous plants.

Name—*Sub*, somewhat, *later*, a brick; somewhat brick-red.

Glamis, N.B.

16. *Helotium repandum* (nov. sp.).

Cup shortly stipitate, plane, repand, thin, pale yellow, margin sublobate; stem very short, attenuated at the base; asci cylindraceo-clavate; sporidia 8, subcylindrical or oblong-elliptic, 7—10 × 2μ; paraphyses filiform, slender.

On *Spiræa ulmaria* in damp places.

Cup about ¼ to ½ a line broad.

Name—*Repandus*, bent backwards.

Scotland! (Rev. Dr. Keith).

(γ) *On leaves and fronds.*

17. *Helotium sulphuratum.* (Schum.)

Cup stipitate or subsessile, at first orbicular, concave, then expanded, margin entire, between sulphur

and lemon-colour; externally, as well as the tumid margin, pallid; asci cylindraceo-clavate; sporidia 8, fusiform, straight or curved, 2 to 3-guttulate, 12—17·× 3—4·5μ; paraphyses filiform, slender, sometimes branched.

Peziza sulphurata—Schum., "Saell.," p. 428; "Flo. Dan.," t. 1915, f. 2; Fries, "Sys. Myco.," ii. p. 72; *Peziza thejocroa*—Pers., "Myco. Eur.," p. 296; "Scott. Nat.," vi. 122.

On the ground in pine woods; on fallen leaves of pine. Autumn.

Cups $\frac{1}{4}$ to 2 lines broad; gregarious, at first slightly floccose; the stem is short, not unfrequently absent. The sporidia are nearly pointed at the extremities.

Name—*Sulphuratus*, dressed with brimstone; from its colour.

Cawdor, N.B.!

18. *Helotium immutabile.* Fckl.

Epiphyllous, of a pale unchangeable yellow; the cups are scattered, and sessile or attenuated into a very short concolorus stem, plane, acutely margined, orbicular or slightly repand; asci clavate; sporidia 8, obliquely uniseriate, oblong-ovate, straight, continuous, hyaline, 11—12 × 3—5μ; paraphyses filiform.

Helotium immutabile—Fckl., "Symb. Myco.," nacht. i. p. 50.

Exs.—"F. Rh.," No. 2388.

On fallen leaves of *Populus tremula.*

Cups 1 to 1·5 lines broad. Distinguished from *H. epiphyllum* not only by the constancy of the colour, but also the smaller and differently shaped asci and sporidia.

Name—*Immutabilis*, unchangeable.

Near Shrewsbury!

19. *Helotium phyllophilum.* (Desm.)

Cup plano-concave, becoming convex, glabrous, hyaline-white or yellowish white; stem short, or nearly

absent; asci clavate; sporidia 8, fusiform, straight, or curved, 11 × 2·5μ; paraphyses filiform.

Peziza phyllophila—Desm., "Crypt. Fr." *Helotium phyllophilum*—Karst., "Symb.," p. 239. *Pezicula phyllophila*—Karst., "Myco. Fenn.," p. 167. *Helotium albopunctum*—Bucknall, "Fung. Bristol," No. 805. *Phialea phyllophila*—Gill., "Champ.," p. 105.

Exs.—Desm., "Crypt. Fr.," ed. i. 1159.

On dead leaves of *Acer*, *Fagus*, etc. Autumn and winter.

Cup about 1½ lines broad; gregarious or scattered. Nearly obconical in outline at first, the cup at length expands, and the disc is slightly concave, and at length often convex.

Name—φύλλον, a leaf, φίλος, loving; from its habitat.

Leigh Downs, Bristol! (Mr. C. Bucknall).

20. *Helotium epiphyllum.* Fries.

Cup subsessile, convexo-plane, marginate, pallid-ochraceous, smooth, firm; stem very short or absent; asci cylindraceo-clavate; sporidia 8, fusiform or oblong-elliptic, straight or bent, 3 to 4-guttulate, 12—15 × 4μ; paraphyses filiform, slender.

Helotium epiphyllum—Fries, "Summa Veg. Scan.," p. 356; Berk., "Outl.," p. 372; Gill., "Champ.," p. 155, c. i. *Peziza epiphylla*—Pers., "Tent. Disp. Meth.," p. 72; "Syn. Fung.," p. 669; A. and S., p. 339; Fries, "Sys. Myco.," ii. p. 137; Karst., "Pez. et Ascob.," p. 35; "Mon. Pez.," p. 143; Nyl., "Pez. Fenn.," p. 46; Fckl., "Symb. Myco.," p. 316.

Exs.—Fckl., No. 1145; Karst., "Fung. Fenn.," 722; Roumg., "Fung. Gal.," 1264.

On dead leaves.

Cup about ½ to 1½ lines broad.

Name—ἐπί, upon, φύλλον, a leaf; from its habitat.

Forres, N.B.! (Rev. Dr. Keith). Cawdor, N.B.! (Rev. J. Stevenson). Leigh Woods, near Bristol! (Mr. Cedric Bucknall).

21. *Helotium ilicis* (nov. sp.).

Sessile, plane or concave, glabrous, waxy, vitelline; margin paler, obtuse, repand; asci clavate, pointed at the summit; sporidia fusiform, biguttulate, at length pseudo-uniseptate, 6—9 × 2·5μ; paraphyses filiform.

Helotium epiphyllum, var. *ilicina*—Phil., "Elv. Brit.," No. 134.

On holly leaves.

Cup ¼ of a line broad.

Name—*Ilex*, the holly; from its habitat.

Shrewsbury! Carlisle! (Dr. Carlyle).

22. *Helotium Marchantiæ*. Berk.

Cup shortly stipitate or sessile, rather thick, plane, marginate, flexuose, pale yellowish brown; stem very short or absent, obconical; asci cylindraceo-clavate; sporidia 8, elliptic or oblong-elliptic, 12—15 × 3—5μ; paraphyses filiform, rather stout.

Helotium Marchantiæ—Berk., "Outl.," p. 372; Cooke, "Handbk.," 2160; Fries, "Summa Veg. Scan.," p. 356; Karst., "Myco. Fenn.," p. 123. *Peziza Marchantiæ*—Berk., "Eng. Flo.," v. p. 204.

On fading *Marchantia hemispherica*. May.

Cup about ½ to ¾ of a line broad, "smooth, head quite confluent with the thick stem, so as to be irregularly and obtusely obconic; flesh white; hymenium thin" (Rev. M. J. Berkeley).

Name—*Marchantiă*, a genus of *Hepaticæ*; from its habitat.

Whittlesea Mere (Rev. M. J. Berkeley).

(*d*) *Sporidia linear.*

(*a*) *On wood.*

23. *Helotium imberbe*. (Bull.)

Cup turbinate, becoming plano-concave, subflexuous, fleshy or waxy, smooth, white; stem short or nearly obsolete; asci (?); sporidia 8, linear, slightly curved, 10μ long.

Peziza imberbis—Bull., "Champ.," t. 467, f. 2; Fries, "Sys. Myco.," ii. p. 136; D. C., "Flo. Fr.," ii. p. 81; Cooke, "Handbk.," No. 2094. *Peziza nivea*—Batsch, "El.," p. 117, f. 59. *Helotium imberbe*—Berk., "Outl.," p. 18; Gill., "Champ.," p. 162.

Exs.—Fckl., No. 1148.

On willow.

Name—*Imberbis*, without a beard; without hairs.

Mossburnford.

B. SESSILE.

(*a*) *Sporidia oblong or oblong-elliptic.*

(*a*) *On wood.*

24. *Helotium claro-flavum.* (Grev.)

Cup very shortly stipitate or sessile, plane, clear yellow, glabrous; margin raised, obtuse, sublobate; asci cylindrical; sporidia 8, oblong or oblong-elliptic, 7—10 × 2—3μ; paraphyses filiform, slender. (Plate V. fig. 31.)

Peziza claro-flava—Grev., "Flo. Edin.," p. 424; "Eng. Flo.," v. p. 203. *Helotium claro-flavum* (Grev)—Berk., "Outl.," p. 372; Cooke, "Handbk.," No. 2150.

On decayed wood and branches. Autumn.

Cups very minute, the largest not $\frac{1}{2}$ a line broad, always concave; whole plant very bright yellow; hymenium darker (Grev.). I find the cups more frequently plane.

Name—*Clarus*, clear, *flavus*, light yellow.

Braid Hermitage, near Edinburgh (Dr. Greville). Wrekin, Salop!

25. *Helotium pruinosum.* Jerd.

Cup sessile, plane, thick, firm, marginate or immarginate, chalky white, pruinose; asci cylindraceo-clavate; sporidia 8, oblong or oblong-elliptic, 3 to 4-guttulate, becoming 2-septate, 20—22 × 4μ; paraphyses filiform, slender.

Helotium pruinosum—Jerd., B. and Br., "Ann. Nat. Hist.," No. 1174, t. 5, f. 33; Cooke, "Handbk.," No. 2154.

Exs.—Cooke, "Fung. Brit.," No. 575; ed. ii. 390; Phil., "Elv. Brit.," No. 89; Rabh., "Fung. Eur.," 1514; Roumg., "Fung. Gal.," 2771.

On *Hypoxylon fuscum* and *Diatrype stigma*; on dead wood. Autumn.

Cup about ½ a line broad. The hymenium is often bluish, and nearly always chalky.

Name—*Pruina*, hoar-frost; from the hoary disc.

Derbyshire (Mr. J. Renny). Leigh Woods, near Bristol (Mr. C. Bucknall). Near Shrewsbury! Llanyblodwell, Oswestry!

(*b*) *Sporidia fusiform or oblong-fusiform.*

(*a*) *On herbaceous stems or twigs.*

26. *Helotium herbarum.* (Pers.)

Cup very shortly stipitate or sessile, plane or convex, firm, white; stem extremely short or absent; asci cylindraceo-clavate; sporidia 8, fusiform or oblong-fusiform, 2 to 3-guttulate, becoming pseudo-uniseptate, 12—15 × 2—4μ; paraphyses filiform, slender.

Helotium herbarum (Pers.)—Fries, "Summa Veg. Scan.," p. 356; Berk., "Outl.," p. 372; Cooke, "Handbk.," No. 2156; Fckl., "Symb. Myco.," p. 316; Gill., "Champ.," p. 162, c. i. *Peziza herbarum*—Fries, "Sys. Myco.," ii. p. 136; "Eng. Flo.," v. p. 204; Karst., "Pez. et Ascob.," p. 34; "Mon. Pez.," 146; Nyl., "Pez. Fenn.," p. 45.

Exs.—Desm., "Crypt. Fr.," ed. i. 603; ed. ii. 568; Rabh., "Herb. Myco.," ed. ii. 227; Karst., "Fung. Fenn.," 81; Fckl., "F. Rh.," 1147; Phil., "Elv. Brit.," 87; Cooke, "Fung. Brit.," ser. ii. 391; Roumg., "Fung. Gal.," 451.

On dead herbaceous stems in moist woods. Autumn.

Name—*Herba*, an herb; on herbs.

Forres (Rev. Dr. Keith). Rose Hill, near Shrewsbury! Wrekin, Salop!

27. *Helotium Humuli.* (Lasch.)

Cup very shortly stipitate or sessile, convex, becoming slightly concave, lutescent, firm; asci cylindraceo-clavate; sporidia 8, fusiform, slender, 2 to 3-guttulate, becoming uniseptate, straight or slightly curved, 16—20 × 4μ.

Peziza Humuli—Lasch. in Rabh., "Herb. Myco.," ed. ii. 221, and ed. i. 630. *Helotium Humuli*—Karst., "Myco. Fenn.," p. 112. *Peziza Humilis*—Desm., "Ann. Sc. Nat.," 1847, notice 84.

Exs.—Roumg., "Fung. Gal.," 1859.

On dead stems of *Humulus Lupulus.*

Cup 1 line broad, scattered, mostly sessile, thick, waxy, glabrous, at first globose, then the disc becomes slightly depressed, almost marginate. The colour is at first white; it then changes to pale yellow or pale brown.

Name—*Humulus*, the hop; on hops.

Llanymynach!

28. *Helotium badium* (nov. sp.).

Gregarious, erumpent, sessile, at first turbinate and slightly concave, at length plane; hymenium bay-brown, margin distinct and somewhat lighter; externally the same colour, glabrous; asci broadly clavate, rather abruptly narrowed at the base; sporidia 8, oblong-fusiform or subclavate, 3 to 5-guttulate, 20 × 5μ; paraphyses filiform, slender.

On dead twigs (willow?)

Cup ½ to 1 line broad; margin entire and even. It has a general likeness to *H. ferrugineum*, but differs altogether in the fruit.

Botanic Garden, Oxford! 1822 (Mr. Baxter).

(β) *On cones.*

29. *Helotium conigenum.* (Pers.)

Cup shortly stipitate or sessile, plane, at length convex, pale yellow or pallid, glabrous; stem thick,

short, at length obliterated; asci cylindraceo-clavate; sporidia 8, fusiform, 6 × 2μ.

Helotium conigenum (Pers.)—Berk., "Outl.," p. 372; Cooke, "Handbk.," No. 2135; Karst., "Myco. Fenn.," p. 126; Fckl., "Symb. Myco.," p. 316; Gill., "Champ.," p. 159. *Peziza conigena*—Pers., "Syn. Fung.," p. 634; Fries, "Sys. Myco.," ii. p. 139; "Eng. Flo.," v. p. 205; Nyl., "Pez. Fenn.," p. 49; Karst., "Pez. et Ascob.," p. 36; "Mon. Pez.," p. 152.

On cones of Scotch fir in damp spots. Autumn.

Cup ¼ to ½ a line broad; gregarious; stem often reduced to a mere point. Nylander and Karsten give the size of sporidia as 7—8 × 3·5μ.

Name—*Conus*, a cone, *gignere*, to bear; on cones.

Near Shrewsbury! Buttington, Montgomeryshire!

(*c*) *Sporidia cylindrical.*

(*a*) *On wood.*

30. *Helotium scoparium.* Cooke.

Cup sessile, convex, becoming greyish in drying, disc rather paler; asci clavate; sporidia 8, cylindrical, obtuse, straight or curved, biguttulate, at length pseudo-septate, 20—25 × 5μ; paraphyses filiform, granular.

Helotium scoparium—Cooke, "Grevillea," iv. p. 112.

On dead twigs of broom.

Cup ½ a line broad; scattered or subgregarious; asci 100μ long, 29μ broad.

Name—*Scoparius*, brown; on broom.

Dupplin Castle, Perth (Dr. M. C. Cooke).

(*d*) *Sporidia doubtful.*

31. *Helotium punctiforme.* (Grev.)

Cup shortly stipitate or sessile, punctiform, globose, becoming expanded, at length convex, fleshy, glabrous, yellow; margin crenulate.

Peziza punctiformis—Grev., "Sc. Crypt. Flo.," t. 63. *Helotium punctatum*—Fries, "Summa Veg. Scan.,"

p. 356; Berk., "Outl.," p. 372; Cooke, "Handbk.," No. 2159.

On dead oak leaves.

Name—*Punctum*, a point, *forma*, shape; from the shape.

Edinburgh (Dr. Greville).

32. *Helotium phascoides.* Fries.

Of a waxy or watery consistence, minute, pallid, with a brick-red tinge; head turbinate, plane; stem short, sub-equal.

Peziza phascoides—Fries, "Sys. Myco.," ii. p. 138; "Eng. Flo.," v. p. 204. *Helotium phascoides*—Fries, "Summa Veg. Scan.," 355; Berk., "Outl.," p. 372; Cooke, "Handbk.," No. 2136.

On small mosses.

"Mr. Wilson's specimens are subgregarious and perhaps a less red tinge, as far as may be judged from the dry plant, but there is no doubt that they are what Fries intends" (Berk. in "Eng. Flo.," *l. c.*).

I have not seen this; it is not in Mr. Berkeley's herbarium.

Name—*Phascum*, the genus of mosses on which it grows.

33. *Helotium ochraceum.* (Grev.)

Cup shortly stipitate or sessile, smooth, yellowish-brown, fleshy; disc paler, concave, plane, or convex, sprinkled with granular shining particles; asci cylindraceo-clavate; sporidia 8.

Helotium ochraceum—Berk., "Outl.," p. 372; Cooke, "Handbk.," No. 2148. *Peziza ochracea*—Grev., t. 5; "Eng. Flo.," v. p. 204.

On the bark of a fallen tree. Autumn.

Plants minute, gregarious, of an ochery brown colour, globular and concave in the young state, and gradually becoming plane or even somewhat convex; substance thick and fleshy, not shrinking much in drying; margin depressed, rounded, entire, somewhat showing a tendency

to become lobed; barren or inferior surface smooth, rather rugose or puckered towards the root; hymenium or upper surface appearing as if sprinkled with minute shining particles, not unlike small grains of brown sugar; tubular cells containing the sporules, filiform, mixed with barren filaments; sporules 5 to 8 (Grev., *l. c.*).

Name—*Ochraceus*, colour of yellow ochre.

Braid Hermitage, near Edinburgh (Dr. Greville) Shrewsbury (Rev. W. A. Leighton).

32. *Helotium agaricinum.* Berk.

Firm, dark green, convex, rather uneven; margin revolute; stem rather thick, obconic; asci long, flexuous, obtuse.

Peziza agaricina—Carm., MSS., "Eng. Flo.," v. p. 207; Cooke, "Handbk.," 2127.

On decayed wood.

Plant 1½ to 2 lines broad, very much resembling at first sight *Helotium virens* (Pers. in litt.), but on closer inspection quite different ("Eng. Flo.").

33. *Helotium buccina.* Fries.

Rather large, infundibuliform, dull yellow; stem thickened, striate, somewhat incurved.

Peziza buccina—Fries, "Sys. Myco.," ii. p. 129; "Eng. Flo.," v. p. 202. *Helotium buccina*—Fries, "Summa Veg. Scan.," 355; Berk., "Outl.," p. 372; Cooke, "Handbk.," 2141.

On wood and pine branches. Rare.

Carmichael's original specimen (129, Kew. Herb.) is ¼ of an inch broad, ⅛ high, and decidedly gelatinoso-cartilaginous. It is, to me, a *Guepinia*, there being no asci present. Carmichael considered it a *Tremella*.

34. *Helotium sclerotioides.* Berk.

Convex, umbilicate, clear red-brown, concave beneath, and confluent with the short obconic stem; asci slender; sporidia (?).

Peziza sclerotioides—Berk. in "Eng. Fung.," v. p.

208. *Helotium sclerotioides*—Berk., "Outl.," 371; Cooke, "Handbk.," 2128.

On decayed wood.

At first sight resembling *Sclerotium quercigenum*; about 1 line broad (M. J. Berkeley).

The only specimen under this name I have seen is in the Kew Herbarium, and it has no fruit.

Appin (Carmichael). Near Bristol (Mr. A. Leipner).

Genus VII.—Mollisia. Fries.

Minute, sessile, urceolate, cupulate or plane; substance soft, rarely waxy; exterior glabrous or furfuraceous, even or plicate; sporidia 8, minute, globose, elliptic, fusiform or filiform, hyaline, simple or 1-septate. (Plate VI. figs. 32–36.)

Growing on vegetable substances.

For the most part darker in colour and softer than *Helotium*; the minute pore by which the cup opens visible from the first. Never hairy or even tomentose.

Name—*Mollis*, soft.

Arrangement of Subgenera.

I.	*Niptera*	1–11
II.	*Pyrenopeziza*	12–32
III.	*Dilutella*	33–37
IV.	*Mollisiella*	38–46
V.	*Hysteropeziza*	47
VI.	*Pseudopeziza*	48–51
VII.	*Peristomealis*	52

Key to the Subgenera.

	Margin furnished with a peristome	*Peristomealis.*
	Margin not furnished with a peristome	1
1.	Emerging when moist through a narrow black slit	*Hysteropeziza.*
1.	Emerging when moist through the epidermis by a lacerated aperture (resembling *Phacidium*)	*Pseudopeziza.*
1.	Seated on the epidermis	2
2.	Texture rather firm; cups plane	*Niptera.*
2.	Texture soft; cups globose (mostly black)	*Pyrenopeziza.*
2.	Texture soft, scarcely coloured, at length expanded	3
3.	Glabrous	*Dilutella.*
3.	Minutely granulated	*Mollisiella.*

Subgenus I.—Niptera. Fckl. (in part).

Cup sessile, concave or plane, soft or waxy, glabrous or granulose; sporidia ovate or fusiform, simple, sometimes 1-septate. (Plate VI. fig. 32.)

Name—*Niptrum*, a basin; from the shape.

Arrangement of the Species.

A.	Sporidia ovate, apiculate	species 1
B.	Sporidia oblong-elliptic	„ 2
C.	Sporidia fusiform or oblong-fusiform	„
	(*a*) On wood	„ 3-5
	(*b*) On fir-cones	„ 6
	(*c*) On herbaceous stems	„ 7-10
	(*d*) On culms of *Arundo*	„ 11

Key to the Species.

	Hymenium yellow	1
	Hymenium grey	2
	Hymenium pallid	3
1.	Externally ochery-yellow	*Teucrii.*
	Externally umber-brown	*discolor.*
2.	Externally watery cinereous	*benesueda.*
	Externally greenish-brown	*aquosa.*
	Externally cinereous or livid; margin paler than disc	*cinerea.*
	Externally rufous; margin fimbriate	*urticicola.*
	Externally brownish-black	*fallax.*
	Externally black	4
3.	Exterior pallid: on *Arundo*	*arundinacea.*
	Exterior pallid: on *Peltigera canina*	*epithallina.*
4.	Margin fimbriate	*cyanites.*
	Margin entire	*atro-cinerea.*

A. SPORIDIA OVATE, APICULATE.

1. *Mollisia aquosa.* (B. and Br.)

Cup at first closed, then expanded, plane, or slightly concave, greenish-brown, smooth; hymenium watery grey; sporidia biseriate, ovate, apiculate, 5—6 × 2·5—3·5*μ*.

Peziza (*Mollisia*) *aquosa*—B. and Br. in "Ann. Nat. Hist.," No. 1326, t. xx. f. 19; "Grevillea," i. p. 130.

On or with *Sphæria hirsuta*, on willow. January.

Resembling *P. cinerea*, but smoother and more con-

cave when young, with totally different spores. Cup ·024 inch diameter, growing on *Sphæria hirsuta*, and its mycelium, accompanied by a brown mould, consisting of erect, simple, articulated threads, surmounted by a single oblong uniseptate spore, ·0005 inch (12μ) long; asci ·002 inch (50μ); sporidia ·0002 to ·00025 inch (5 to 6μ) long, ·0001 to ·00015 inch (2·5 to 3·5μ) wide; bright orange when treated with iodine (B. and Br.).

Name—*Aqua*, water; watery.

B. SPORIDIA OBLONG-ELLIPTIC.

2. *Mollisia epithallina.* Phil. and Plow.

Congregated, sessile, disciform, immarginate, pallid-white; asci cylindraceo-clavate; sporidia 8, oblong-elliptic, 8 × 2μ; paraphyses slender, slightly thickened upwards.

Peziza (*Mollisia*) *epithallina*—Phil. and Plow. in "Grevillea," vi. p. 24.

On thallus of *Peltigera canina*.

Name—ἐπί, upon, θαλλος, a branch or thallus of a lichen; from its habitat.

King's Lynn! (Mr. C. B. Plowright).

C. SPORIDIA FUSIFORM OR OBLONG-FUSIFORM.

(*d*) *On wood.*

3. *Mollisia cinerea.* (Batsch.)

Cups gregarious or scattered, at first urceolate, at length applanate, cinereous or nearly livid; margin entire, whitish, not unfrequently repand or flexuose; hymenium when dry cinereous, yellowish, or becoming blackish; asci cylindraceo-clavate; sporidia 8, oblong or subfusiform, straight or curved, 5—12 × 1—2μ; paraphyses filiform, slender.

Peziza cinerea—Batsch, p. 196, f. 137; Pers., "Obs.," ii. p. 80; "Myco. Eur.," i. p. 302; Wahl., "Flo. Suec.," ii.

p. 1030; Fries, "Sys. Myco.," ii. p. 142; Sow., t. 64; With., v. p. 312; "Eng. Flo.," v. p. 205; Karst., "Pez. et Ascob.," p. 37; "Mon. Pez.," p. 158; Nyl., "Fung. Fenn.," p. 60; Cooke, "Handbk.," No. 2100. *Peziza callosa*—Bull., t. 416, f. 1; "Flo. Dan.," t. 1490, f. 2. *Peziza salicaria*—Pers., "Myco. Eur.," i. p. 308. *Trochila salicaria*—De Not., "Disc.," p. 15. *Mollisia cinerea*—Karst., "Myco. Fenn.," p. 189; Gill., "Champ.," p. 134. *Niptera cinerea*—Fckl., "Symb. Myco.," p. 292.

Exs.—Desm., "Crypt. Fr.," ed. i. No. 1421, ed. ii. No. 921; Karst., "Fung. Fenn.," No. 735; Cooke, "Fung. Brit.," No. 390, ed. ii. 382; Phil., "Elv. Brit.," No. 125; Rabh., "Fung. Eur.," No. 2116 and 1643; Rovmg., "Fung. Gal.," 831.

On decaying wood. Autumn to spring.

Cup ½ to 2 line broad. "Often crowded, equal or lobed, and waved at the margin; hymenium pale or grey, watery, paler towards the circumference; substance soft and sometimes almost gelatinous" (Grev.). This should be compared with *Lachnella Schumacheri*.

Name—*Cinis*, ashes; ash-colour.

Found everywhere.

4. *Mollisia benesuada.* (Tul.)

Gregarious or fasciculate erumpent, sessile, at first subhemispherical, then expanded, becoming convex, difformed, waxy; externally glabrous, watery cinereous; hymenium pallid or brownish; asci cylindraceo-clavate; sporidia fusiform or oblong-fusiform, hyaline, 10 × 2·5μ.

Peziza benesuada—Tul., "Ann. Sc. Nat.," 1853, t. 15, f. 8, 9.

Exs.—Phil., "Elv. Brit.," No. 175; Rehm, "Asco.," 756; Cooke, "Fung. Brit.," ed. ii. 653.

On dead branches of alder.

Cups about ½ a line broad. These burst out through the bark in little heaps, much crowded and difformed. The supposed spermatia are rarely to be met with. This is very near *M. cinerea* and *M. fallax*.

Name—*Bene*, well, *suadeo*, to persuade; from afford-

ing evidence of the author's views on the question of reproductive bodies.

Near Ludlow, Salop! Neatishead (Dr. M. C. Cooke).

5. *Mollisia discolor.* (Mont.)

Gregarious, suberumpent, sessile, waxy, plano-patellate, externally umber-brown; hymenium wax-yellow; asci clavate; sporidia 8, fusiform, hyaline, 4-guttulate, $8 \times 2\mu$.

Patellaria discolor—Mont., "Syll.," p. 190; Berk., "Outl.," p. 373; Cooke, "Handbk.," No. 2169.

On dead wood; on branches of *Cornus sanguinea* (Mont.).

Cup $\frac{1}{4}$ to $\frac{1}{2}$ a line; crowded or scattered; when young subhemispherical, at length expanded; disc bluish or cinereous, or brownish; the pseudo-parenchyma consists of brown subglobose cells.

Name—*Discolor*, of various colours.

Var. *Riccia* (Sacc.).

Niptera Riccia—Sacc., "Myco. Ven. Sp.," p. 162, t. xvi. f. 3–6.

Exs.—Sacc., "Fung. Ven.," iv. 33.

Differing in its mode of growth, having lobed margin.

Gopsall! (Bloxam). Sutton Coldfield! (W. B. Grove).

(*b*) *On fir-cones.*

6. *Mollisia fallax.* (Desm.)

Cups scattered or crowded, at first hemispherical, at length applanate, brownish-black; margin entire, subinvolute, paler; hymenium cinereous or discoloured brown; asci cylindraceo-clavate; sporidia 8, oblong or fusiform, straight, at length uniseptate, $10 \times 2\mu$; paraphyses scarce.

Peziza fallax—Desm. (non Pers., "Myco. Eur."), "Ann. Sc. Nat.," 1845, p. 367. *Mollisia fallax*—Gill., "Champ.," p. 119.

Exs.—Desm., "Crypt. Fr.," ed. i. No. 1420, ed. ii. No. 920; Roumg., "Fung. Gal.," 1253.

On cones of *Pinus sylvestris*.

Cup ¼ to ½ a line broad. This differs from *P. cinerea* (Batsch) in the browner shade, and always occurring on cones.

Name—*Fallax*, deceitful; from its resemblance to others.

Generally distributed.

(*c*) *On herbaceous stems.*

7. *Mollisia cyanites* (nov. sp.). Cooke and Phil.

Gregarious, minute, sessile, concave, then plane, black; margin fimbriate; hymenium bluish grey; asci clavate; sporidia 8, cylindraceo-fusiform, elongated, 5 to 7-guttulate, 25 × 3μ; paraphyses filiform, slender.

On herbaceous stems.

Cup ⅛ to ¼ of a line broad.

Name—κύανος, dark blue.

Scotland (?); Klotzsch in Kew Herbarium.!

8. *Mollisia atro-cinerea.* (Cooke.)

Gregarious or scattered, sessile, slightly concave or plane; externally black, glabrous; hymenium cinereous; asci clavate; sporidia 8, fusiform or cylindrical, straight or curved, 5—7 × 1μ; paraphyses not seen.

Peziza atro-cinerea—Cooke in Exs. "Fung. Brit.," No. 382.

On herbaceous stems (?).

Cups ⅕ to ¼ of a line broad.

Name—*Ater*, black, *cinis*, ashes; from the black exterior and the ashy disc.

9. *Mollisia Teucrii.* (Fckl.)

Gregarious, sessile, watery transparent, very pale yellowish-white, somewhat ochery-yellow, at first nearly closed, excavated, becoming plane, orbicular, marginate, outside the margin scarcely pubescent; hymenium same colour, when dry becoming yellow; asci cylindrical, globose-stipitate; sporidia 8, cylindrical or fusiform, 8 × 1μ; paraphyses filiform.

Niptera Teucrii—Fckl., "Symb. Myco.," supp. i. p. 47.

Exs.—Fckl., "F. Rh.," 2378; Phil., "Elv. Brit.," No. 181.

On dead stems of *Teucrium scorodonia*, in damp places.

Cups 500μ broad, often crowded, when dry nearly black; asci with a subglobose base.

Name—*Teucrium*, a genus of *Labiatæ*.

Trefrew, North Wales!

10. *Mollisia urticicola.* Phil.

Gregarious, sessile, subhemispherical, becoming nearly plane, externally glabrous, pale rufous-brown; margin fimbriate; hymenium from pale cinereous to pale brown; asci cylindraceo-clavate; sporidia 8, fusiform or cylindrical, 7 × 1μ; paraphyses filiform, slender.

Peziza urticicola—Phil., "Elv. Brit.," No. 177.

On dead stems of *Urtica*, lying in a damp place occasionally inundated.

Cups about 500μ broad.

Name—*Urtica*, the nettle, *colo*, to inhabit.

Shelton Rough, near Shrewsbury!

(*d*) *On culms of Arundo.*

11. *Mollisia arundinacea.* (D. C.)

Gregarious, erumpent, sessile, plane, orbicular, thin, waxy; hymenium pallid, becoming fuliginous; margin narrow, darker; asci cylindraceo-clavate: sporidia narrowly fusiform, 10—15 × 2μ.

Xyloma arundinaceum—D. C., "Flo. Fr.," vi. p. 162; *Eustegia arundinacea*—Fries, "Sys. Myco."; "Elench.," p. 112; "Grevillea," iv. p. 67. *Stegia arundinacea*—Fckl., "Symb. Myco.," supp. i. p. 328.

Exs.—Moug. and Nest, No. 983; Cooke, "Fung. Brit.," 11, No. 380.

On culms of *Arundo Phragmites*.

About $\frac{1}{4}$ of a line broad; usually seated on a blackish

or brownish space. When old the hymenium separates from the excipulum in the manner of an operculum, which led the illustrious Fries to place it in his genus *Eustegia*.

Name—*Arundinaceus*, belonging to a reed.

Shrewsbury!

Subgenus II.—Pyrenopeziza. Fckl. (in part).

Cup erumpent or superficial, globose, then expanded, opening at first by a minute pore; glabrous or furfuraceous, often vertically plicate, black, cinereous, or dark brown (except *elaphines*); sporidia elliptic, fusiform or filiform, simple, rarely uniseptate, hyaline. (Plate VI. fig. 33.)

Name—πυρήν, a kernel, and *peziza*; from the globose form.

Arrangement of the Species.

A. Cups superficial.		
(*a*) Sporidia elliptic or oblong	species	12
(*b*) Sporidia subfusiform	„	13–19
(*c*) Sporidia filiform	„	20–21
B. Cups erumpent.		
(*a*) Sporidia elliptic or oblong	„	22–24
(*b*) Sporidia fusiform or elongate-fusiform	„	25–27
(*c*) Sporidia cylindrical or acicular	„	28–32

Key to the Species.

	Hymenium fuscous-black: on wood	*fœcunda.*
	Hymenium fuliginous: on *Typha*	*Typhæ*
	Hymenium brown	1
	Hymenium cinereous	2
	Hymenium whitish or watery-grey	3
	Hymenium pallid	*lignicola.*
1.	Externally brown, scabrous: on *Arctium*	*Arctii.*
1.	Externally brownish; margin striate: on *Juncus*	*micrometra.*
1.	Externally umber-brown, rugulose; margin fimbriate: on grass	*graminis.*
1.	Externally pale umber-brown, farinoso-tomentose: on *Umbelliferæ*	*Grevellei.*
2.	Externally black, rugose; margin crenulate, paler: growing in lines on *Plantago*	*nervisequia.*
2.	Externally blackish, mealy; margin entire: on *Plantago*	*Plantaginis.*
2.	Externally black, scabrous, rugose; margin contracted	*jugosa.*
2.	Externally blackish, squamulose: on *Digitalis*	*Digitalina.*

3.	Externally fawn-colour, sprinkled with saccharine granules: on wood	*elaphines.*
	Externally black, rugose; margin whitish	*atrata.*
	Externally black, rugose; margin erect: on *Lychnis*	*sphæroides.*
	Externally black, rugose: on *Carex*	*melatephra.*
	Externally umber-brown, glabrous; margin entire, white	*paulula.*
	Externally tawny, glabrous; margin tumid	*arenevaga.*
	Externally cinereous, granulated; margin denticulate: on leaves	*viburnicola.*
	Externally cinereous; margin entire, paler	*ebuli.*
	Externally brownish black: on *Artemisia*	*artemisiæ.*
	Externally whitish or greyish brown; margin entire, sinuous	*palustris.*

A. SUPERFICIAL

(*a*) *Sporidia elliptic or oblong.*

12. *Mollisia nervisequia.* (Pers.)

Sessile, seriate, at first nearly globose, then expanded, perpendicularly rugose, blackish grey; margin crenulate, paler; hymenium concave, cinereous or black; asci clavate; sporidia 8, oblong-elliptic or oblong, 13 × 3μ; paraphyses filiform, slender. (Plate VI. fig. 33.)

Peziza nervisequia—Pers., "Myco. Eur.," 308; Fries, "Sys. Myco.," ii. p. 193; B. and Br., "Ann. Nat. Hist.," No. 1171; Cooke, "Handbk.," No. 2121.

Exs.—Desm., "Crypt. Fr.," 2012; Roumg., "Stirpes," 331.

On dead leaves of *Plantago lanceolata*; chiefly on the nerves of the leaves. Winter.

This very much resembles *M. plantaginis*, but the asci and sporidia are much larger, besides the habit of growth on the nerves.

Name—*Nervus*, a nerve, and *sequor*, to follow.

Batheaston (Mr. C. E. Broome).

(*b*) *Sporidia subfusiform.*

13. *Mollisia elaphines.* (B. and Br.)

Gregarious, subglobose, sessile, pale fawn-colour; mouth paler, white, sprinkled with saccharine granules; hymenium watery-grey; asci clavate or clavate fusi-

form; sporidia 8, fusiform, 8 × 2μ; paraphyses filiform, slender.

Peziza elaphines—B. and Br., "Ann. Nat. Hist.," No. 1325, t. xix. f. 18; Grevillea, i. p. 130. *Mollisia elaphines*—Gill., "Champ.," p. 131.

Exs.—Cooke, "Fung. Brit.," No. 659; Rabh., "Fung. Eur.," 1813.

On dead wood. January.

Cup 300μ broad. "Granules often disposed in lines so that the cups are radiated" (B. and Br.).

Name— ἐλαφίνης, a fawn; fawn-coloured.

St. Catherine's; Copthorn, near Shrewsbury!

14. *Mollisia lignicola* (nov. sp.).

Gregarious or scattered, sessile, at first globose, at length somewhat expanded; externally scabrous and vertically rugose, brown or blackish-brown, when dry black; margin subfimbriate from the slightly unequally elongated cells; hymenium pallid; asci cylindraceo-clavate; sporidia 8, cylindrical or fusiform, obtuse, straight or curved, 5—8 × 1·5—2μ; paraphyses indistinct.

Mollisia lignicola—Phillips in "Grevillea," v. xv. p. 113.

On old worked wood (on an old gate).

Cup ¼ to ½ a line broad; when dry collapsed, but not plane, even when moist; asci 35 × 4μ; sporidia biseriate. The marginal cells have the form of short, septate, blunt hairs when highly magnified.

Bagley Wood, Berkshire, 1821! (Mr. Baxter in Kew Herb.).

15. *Mollisia Grevillei.* (Berk.)

Cups scattered or gregarious, sessile or subsessile, at first globose, then hemispherical, pale umber, farinoso-tomentose; margin paler and fimbriate; hymenium the same colour; asci cylindraceo-clavate; sporidia 8, oblong-fusiform, straight or curved, 3-guttulate, 6—8 × 2μ; paraphyses filiform, slender.

Peziza Grevillei—Berk., "Eng. Flo.," v. p 198;

Cooke, "Handbk.," 2056. *Peziza nidulus*—Grev., "Flo. Edin.," p. 420; Johnst., "Flo. Berw.," ii. p. 149.

On dead stems of *Umbelliferæ*.

Cups very minute, generally sessile, but sometimes subsessile; nearly the same colour throughout, and so nearly the shade of the dead stem on which they grow as to be hardly distinguishable. The dry specimens show no hairs, but are fimbriate on the margin, owing to the unequal length of the hair-like cells which adhere together.

Name—After Dr. Greville.

Near Edinburgh! (Dr. Greville). Near Berwick, on the cow-parsnip (Johnst., "Flo. Berw.," *l. c.*).

16. *Mollisia atrata.* (Pers.)

Gregarious, prominent, at first nearly spherical and concave, then plane, cinereous or fuscescent, perpendicularly rugose; margin whitish; hymenium at first whitish, becoming cinereous; asci fusiform-clavate or cylindraceo-clavate; sporidia 8, fusiform, 8—10 × 1μ; paraphyses filiform, slender.

Peziza atrata—Pers., "Syn. Fung.," p. 669; "Myco. Eur.," i. p. 306; Fries, "Sys. Myco.," ii. p. 148; "Eng. Flo.," v. p. 207; Berk., "Outl.," p. 371; Karst., "Pez. et Ascob.," p. 40; "Mon. Pez.," p. 159; Cooke, "Handbk.," 2112; Pat., p. 38, f. 92. *Peziza atratula*—Nyl., "Pez. Fenn.," p. 61. *Mollisia atrata*—Gill., "Champ.," p. 127.

Exs.—Desm., "Crypt. Fr.," ed. i. 604, ed. ii. 123; Karst., "Fung. Fenn.," 822; Fckl., 1869; Roumg., "Fung. Gal.," 450.

On dead herbaceous stems. Autumn.

It is to my mind very doubtful whether the plant generally accepted by authors, and described above, is the true plant of Persoon. That his plant grew on trunks he distinctly states, while most authors of to-day accept one or other of several closely allied plants that grow on herbaceous stems and leaves. It would only tend to confusion, however, to disturb this state of things; we have, therefore, followed Dr. Karsten's view of the species.

Name—*Ater*, black.
Shrewsbury! Hereford! Trefriw, North Wales!

Form *Asparagi*. (Winter.)

Scattered or crowded, globose or hemispherical, nigricant, scabrous; margin whitish, connivent; asci cylindraceo-clavate; sporidia 8, oblong-fusiform; 8—10 × 1μ; paraphyses filiform, slender.

Peziza atrata, form *Asparagi*—Winter in Rabh., "Fung. Eur.," No. 1908.

Exs.—Rabh., "Fung. Eur.," *l. c.*

On dead stems of *asparagus*. Autumn.

Name—*Asparagus*, the well-known herb.

King's Lynn! (Mr. C. B. Plowright).

Form *Œnanthes*. Phil.

Gregarious, at first globose, then hemispherical, glabrous, even, cinereous or nigricant; margin paler; asci fusiform or clavate-fusiform; sporidia oblong-fusiform, 8 × 1μ; paraphyses scarce.

Peziza atrata, form *Œnanthes*, in "Elv. Brit."

Exs.—Phil., "Elv. Brit.," No. 179.

On dead stems of *Œnanthe crocata*. Autumn.

Cup about ·3 mm. broad.

Name—*Œnanthe*, a genus of *Umbelliferæ*.

Shelton Rough, near Shrewsbury!

Form *ulmariæ*. (Lasch.)

Gregarious, minute, at first globose, nigricant, perpendicularly rugose, afterwards expanded, brownish-black; margin whitish, connivent; hymenium concave, cinereous; asci cylindraceo-clavate; sporidia 8, cylindraceo-fusiform, 5—8 × 15μ; paraphyses filiform, scarce.

Peziza ulmariæ—Lasch in Klotzsch, "H. M.," 1723; "Flora," 1853, p. 201; Cooke, "Handbk.," No. 2109.

Exs.—Lasch in Klotzsch, "H. M.," 1723; Cooke, "Fung. Brit.," 399; Phil., "Elv. Brit.," 74.

On dead stems of *Spiræa ulmaria*, in damp places. Autumn.

Very minute, gregarious, black with a whitish connivent mouth, globose at first, afterwards cup-shaped; asci 30 × 3μ.

Name—The specific name of *Spiræa ulmaria*.

Wear Coppice, near Shrewsbury! Forres, N.B.! (Rev. Dr. Keith).

Form *Mercurialis*. (Fckl.)

Sessile, at first closed and globose, then open, nearly plane, externally black, squamulose; margin connivent, whitish, fimbriate; hymenium cinereous; asci cylindraceo-clavate; sporidia 8, fusiform or subcylindrical, 7—9 × 1·5μ; paraphyses filiform, slender.

Niptera Mercurialis—Fckl., "Symb. Myco.," p. 293.
Peziza Mercurialis—"Grevillea," vi. p. 24.

Exs.—Fckl., "F. Rh.," 1593; Phil., "Elv. Brit.," 180.

On dead stems of *Mercurialis perennis*. Autumn.

Externally resembling *M. atrata*.

Name—*Mercurialis*, a genus of *Euphorbiaceæ*.

Trefriw, North Wales!

17. *Mollisia Arctii*. Phil.

Scattered, sessile, at first subglobose, then expanded, scabrous, darkish brown; margin paler, serrated, erect or sub-involute; hymenium when moist pale watery-brown; asci broadly clavate; sporidia 8, linear-lanceolate, biseptate, 30—45 × 5μ; paraphyses linear, stout.

Peziza Arctii—Phil. in Bucknall's "Fung. Bristol," No. 999, fig. 5.

On dead stems of *Arctium Lappa*.

Cup about 500μ broad.

Name—*Arctium*, a genus of *Compositæ*.

Blaize Castle Wood and Leigh Woods, near Bristol! (Mr. C. Bucknall).

18. *Mollisia Plantaginis*. (Fckl.)

Sessile, gregarious, minute, punctiform, at first closed, globose, at length open, clad with a blackish meal; margin involute; hymenium concave, cinereous or pallid-

brown; asci cylindraceo-clavate; sporidia 8, biseriate, fusiform, 2-guttulate, 10—15 × 2—3μ; paraphyses filiform, slender.

Pyrenopeziza Plantaginis—Fckl., "Symb. Myco.," p. 295. *Peziza Plantaginis*—"Grevillea," i. p. 131. *Peziza atrata*, form *foliicola*—Desm., "Crypt. Fr.," No. 1313.

Exs.—Desm., "Crypt. Fr.," 1313; Fckl., "F. Rh.," 1594; Cooke, "Fung. Brit.," No. 653, ed. ii. No. 386; Phil., "Elv. Brit.," 37.

On dead leaves of *Plantago lanceolata*. Autumn.

Externally like *P. atrata*, but asci and sporidia larger.

Name—*Plantago*, a genus of *Plantaginaceæ*.

King's Lynn! (Mr. C. B. Plowright).

19. *Mollisia jugosa*. Phil. and Plow.

Crowded, globose, sessile, vertically rugose, scabrous, black, mouth contracted; hymenium cinereous; asci clavate; sporidia 8, oblong-elliptic or fusiform, 3 to 5-guttulate, becoming 3 to 5-pseudo-septate, 14—18 × 3—5μ; paraphyses numerous, adherent.

Peziza (*Mollisia*) *jugosa*—Phil. and Plow. in "Grevillea," xiii. p. 74.

On dead herbaceous stems.

Cup 200μ broad. This is in external characters like *P. atrata*.

Name—*Jugosus*, ridged.

King's Lynn! (Mr. C. B. Plowright).

(*c*) *Sporidia filiform.*

20. *Mollisia micrometra*. (B. and Br.)

Cup very minute, subturbinate, brownish, mouth somewhat contracted, finely striate, attached by strong villous hairs; asci clavate; sporidia 8, filiform.

Peziza micrometra—B. and Br., "Ann. Nat. Hist.," No. 773; Cooke, "Handbk.," No. 2115.

On dead stems of *Juncus*.

Extremely minute, punctiform, horn-brown; hymenium plane (B. and Br., *l. c.*).

Cup not more than 100μ broad. The sporidia refuse to quit the asci in the specimen examined, hence the measurement cannot be safely given.

Name—*μικρός*, small, *μήτρα*, the womb; from the minute interior.

Twycross! (Rev. A. Bloxam).

21. *Mollisia viburnicola.* B. and Br.

Minute, punctiform, subglobose, then hemispherical, cinereous, externally granulated; margin denticulate, furfuraceous; hymenium paler; asci clavate; sporidia 8, filiform, 10—12 × 1μ; paraphyses filiform.

Peziza viburnicola—B. and Br. in "Ann. Nat. Hist.," No. 1170; Cooke, "Handbk.," No. 2120.

Exs.—Cooke, "Fung. Brit.," 656, ed. ii. No. 385; Phil., "Elv. Brit.," No. 85; Rabh., "Fung. Eur.," 1818.

On either side of dead leaves of *Viburnum.*

Cup about 300 to 500μ broad, "externally speckled with little dark tufts of cells, which sometimes give out a few short flexuous hairs" (B. and Br.). The sporidia are linear-oblong, straight, or a little bent.

Name—*Viburnum*, name of the shrub on which it grows, *colo*, to inhabit.

Shere, Surrey! (Dr. Capron).

B. ERUMPENT.

(*a*) *Sporidia elliptic or oblong.*

22. *Mollisia graminis.* (Desm.)

Gregarious or scattered, erumpent, hemispherical, rugulose, umber or cinereous-umber; hymenium pale umber or pallid-grey; margin fimbriate, villose-white; asci clavate or cylindraceo-clavate; sporidia 8, oblong-elliptic, 15 × 2·5μ; paraphyses filiform, stout.

Peziza graminis—Desm., "Crypt. Fr.," ed. i. No. 1066; Karst., "Mon. Pez.," p. 160 (?). *Mollisia graminis*—Karst., "Myco. Fenn.," p. 195; Gill., "Champ.," p. 122.

Exs.—Desm., "Crypt. Fr.," ed. i. 1066, and ed. ii. 466; Karst., "Fung. Fenn.," 831 (?); Rehm, "Asco.," 253; Thum., "Mycoth. Univ.," 216; Rabh., "Fung. Eur.," 1623.

On dead *Triticum sylvaticum*, etc.

A minute species; when dry concealed under the epidermis, issuing when moist through a narrow slit, assuming an elliptic or circular form. The sporidia in Karsten's species differ in outline from those in my plant, and may be different.

Name—*Gramen*, grass; growing on grass.

Shrewsbury!

23. *Mollisia arenevaga*. (Desm.)

Erumpent, minute, scattered, soft waxy, glabrous, when young globose, then plane; externally tawny, with a somewhat tumid tawny elevated margin, which is black when dry; hymenium watery whitish, becoming brown when dry; asci clavate, subcylindrical; sporidia 8, oblong-elliptic, hyaline, obtuse at the ends, 15 × 5μ; paraphyses filiform.

Peziza arenevaga—Desm., "Ann. Sc. Nat.," 1852; "Grevillea," iv. p. 122. *Helotium arenevaga*—Gill., "Champ.," p. 160.

Exs.—Desm., "Crypt. Fr.," ii. 517; Phil., "Elv. Brit.," No. 84.

On dead culms and leaves of *Psamma arenaria*.

Name—*Arena*, sand, *vagus*, wandering; in sandy places.

Towyn, North Wales! Scotland! (F. Cufrey, Esq.).

24. *Mollisia paulula*. (Rob.)

Erumpent, very minute, scattered or gregarious, sessile, soft waxy, glabrous, subglobose, externally between umber-brown and olivaceous; internally pallid-white; mouth connivent, white, entire; asci broadly clavate; sporidia 8, elliptic, 2-guttulate, 12 × 4μ; paraphyses filiform, stout.

Peziza paulula—Rob. in Desm., "Crypt. Fr.," ed. i. No. 2010; "Ann. Sc. Nat.," 1851, p. 324, B. and Br.;

"Ann. Nat. Hist.," No. 960; Cooke, "Handbk.," No. 2116.

Exs.—Desm., "Crypt. Fr.," ed. i. No. 2010, and ed. ii. No. 1610; Klotzsch, 823.

On dead culms of *Juncus maritimus*. Autumn.

Extremely minute.

Name—*Paululus*, very small.

Isle of Wight! (Rev. A. Bloxam).

(*b*) *Sporidia fusiform or elongate-fusiform.*

(*a*) *On herbaceous stems.*

25. *Mollisia ebuli.* (Fries.)

Cup erumpent, gregarious, at first nearly spherical, then urceolate, at length expanded, when dry globose, depressed, cinereous-nigricant; margin paler, when dry nigricant; hymenium cinereous-pallid; asci cylindraceo-clavate, attenuated at the apices; sporidia acicular or elongate-fusiform, guttulate, 6—12 × 1·5μ.

Peziza atrata, var. β. *ebuli*—Fries, "Sys. Myco.," ii. p. 148. *Peziza ebuli*—Karst., "Mon. Pez.," p. 160. *Peziza depressula*—Nyl., "Pez. Fenn.," p. 62 (?).

Exs.—Desm., "Crypt. Fr.," ed. i. 454; Cooke, "Fung. Brit.," ed. ii. No. 376.

On stems of *Epilobium*.

Name—*Ebulus*, specific name of *Sambucus ebulus*.

Forden, North Wales! (Rev. J. E. Vize).

26. *Mollisia sphærioides.* (Desm.)

Scattered, erumpent, at first globose, blackish, rugose, then expanded; margin erect; hymenium concave, watery cinereous, becoming black on drying; asci cylindraceo-fusiform; sporidia 8, slenderly fusiform, straight or curved, 10—15 × 1—1·5μ.

Peziza sphærioides—Desm., "Crypt. Fr.," No. 174; B. and Br., "Ann. Nat. Hist.," No. 577; Cooke, "Handbk.," No. 2105. *Mollisia sphærioides*—Gill., "Champ.," p. 129.

Exs.—Desm., "Crypt. Fr.," No. 174; Cooke, "Fung. Brit.," No. 577; Phil., "Elv. Brit.," No. 34.

On dead stems of *Lychnis dioica*. Autumn.

Minute, scattered, generally seated on a cinereous stain on the stem.

The *Peziza sphærioides* (Roth., "Ust. Ann.," i. p. 2, t. i. f. 6) is *Tympanis conspersa* probably. Persoon cites this, and his is probably the same. The specimens published by Desmazieres are the earliest authority for the present species, which Fries thinks may be his *Excipula lævigata*. Nees, fig. 281, cannot belong to this, but perhaps to *Tympanis*. The present species is a close ally of *Peziza atrata* (M. C. C. in litt.).

Name—σφαῖρα, sphere, εἶδος, a resemblance.

King's Lynn! (Mr. C. B. Plowright). Shrewsbury!

27. *Mollisia Typhæ*. (Cooke.)

Gregarious or scattered, minute, erumpent, sessile, black, soft or waxy, soon plane, laterally compressed when dry; hymenium fuliginous, black when dry, minutely papillate, even; asci cylindrical; sporidia 8, fusiform, hyaline, simple, 12—14 × 2·5—3μ.

Peziza (*Mollisia*) *Typhæ*—Cooke in "Grevillea," vol. i. p. 131.

Exs.—Cooke, "Fung. Brit.," ed. i. 570, ed. ii. 388; Phil., "Elv. Brit.," 127.

On leaves of *Typha*.

Externally like *P. atrata*, but sporidia much longer.

Name—*Typha*, the reed mace.

King's Lynn! (Mr. C. B. Plowright).

(*c*) *Sporidia cylindrical or acicular.*

28. *Mollisia artemisiæ*. (Lasch.)

Erumpent, thin, almost stipitate, at first turbinate, then flattened, somewhat rounded, naked, brownish black; hymenium whitish; margin incurved; asci cylindrical; sporidia 8, linear, minute, hyaline.

Peziza artemisiæ—Lasch. in Rabh., "Herb. Myco.," No. 335; "Grevillea," i. p. 131.

Exs.—Rabh., "Herb. Myco.," No. 335.

On dead stems of *Artemisia vulgaris*.

Name—*Artemisia*, the plant on which it grows.
Isle of Wight.

29. *Mollisia melatephra*. (Lasch.)

Gregarious or scattered, minute, erumpent, hemispherical, then expanded, soft, rugulose, nearly black; hymenium concave, pale cinereous, becoming black on drying; asci clavate; sporidia 8, narrowly fusiform, pseudo-uniseptate, 12 × 1μ; paraphyses filiform, slender.

Peziza melatephra—Lasch. in Rabh., "Herb. Myco."; Karst., "Mon. Pez.," p. 164; Steven., "Myco. Scot.," p. 326; "Grevillea," viii. p. 102. *Mollisia melatephra*—(Lasch) Karst., "Myco. Fenn.," p. 197; Gill., "Champ.," p. 130. *Peziza conformis*—Nyl., "Pez. Fenn.," p. 63.

Exs.—Rabh., "Herb. Myco.," No. 825.

On dead culms of *Carex*.

A minute species, erumpent, orbicular, blackish, except the margin, which is paler. Karsten gives the measurement of the sporidia as 12—20 × 2μ.

Name—$\mu\acute{\epsilon}\lambda\alpha\varsigma$, black, $\tau\acute{\epsilon}\phi\rho\alpha$, ashes; from its colour.

Forres, N.B.! (Rev. Dr. Keith).

30. *Mollisia fœcunda*. Phil.

Cup scattered, minute, at first covered by the epidermis, then erumpent, concave, when moist fuliginous, paler on the margin; hymenium fuscous-black; asci broadly clavate; sporidia 8, fusiform, with 3 to 4 large guttulæ, 25—30 × 4—5μ; paraphyses filiform, enlarged at the apices.

Peziza (*Mollisia*) *fœcunda*—Phil., "Grevillea," viii. p. 102; Steven., "Myco. Scot.," p. 326.

On dead stems of *Cleocharis*. Autumn.

Cup ·5 mm. broad.

Name—*Fœcundus*, fruitful; from its abundant sporidia

Forres, N.B.! (Rev. Dr. Keith).

31. *Mollisia palustris*. (Rob.)

Cup scattered or gregarious, erumpent, at first spherical, at length open, plane or almost convex, appla-

nate, whitish or afterwards greyish brown; hymenium pallid-grey; margin sinuose, entire; asci cylindraceo-clavate, narrowed at the apex; sporidia 8, fusiform or elongated acicular, guttulate, straight, 6—10 × 1—2μ; paraphyses filiform, slender.

Peziza palustris—Rob. in Desm., "Crypt. Fr."; Desm., "Ann. Sc. Nat.," 1847, p. 187; Karst., "Mon. Pez.," p. 163. *Mollisia palustris*—Karst., "Myco. Fenn.," p. 195; Gill., "Champ." p. 120.

Exs.—Desm., "Crypt. Fr.," ed. i. No. 1543.

On dead culms and leaves of *Juncus*. Autumn.

Allied to *Peziza graminis* and *P. cinerea*.

Name—*Palus*, a marsh; growing in a marsh.

Near Shrewsbury!

32. *Mollisia Digitalina*. Phil.

Scattered or crowded, globose, at length expanded, externally black, squamulose, margin paler; hymenium cinereous; asci clavate, somewhat pointed; sporidia 8, cylindrical, straight or bent, 5—7 1·3μ; paraphyses filiform.

Peziza atrata, var. *Digitalina*—Phil., "Elv. Brit.," No. 128.

On *Digitalis purpurea*.

Cup 300—800μ across.

Name—*Digitalis*, the foxglove; from its habitat.

Shrewsbury!

Subgenus III.—Dilutella. Phil.

Sessile, hemispherical, becoming concave or plane, soft, glabrous, pallid, white, or roseate; sporidia subglobose, oblong, or fusiform. Type, *P. dilutella*. (Plate VI. fig. 34.)

Name—*Dilutus*, washed out; pale-coloured.

Arrangement of the Species.

A. Sporidia elliptic .. .. species 33
B. Sporidia linear or subfusiform .. .. „ 34–37

KEY TO THE SPECIES.

Hymenium roseate: on pine leaves	*incarnata.*
Hymenium cinereous-white: on *Epilobium* and *Smyrnium*	*dilutella.*
Hymenium whitish: on rabbit's dung	*albula.*
Hymenium white: on *Lastrea*	*filicum.*
Hymenium bright yellow: on *Pteris*	*flavcola.*

A. SPORIDIA ELLIPTIC.

33. *Mollisia filicum.* Phil.

Gregarious, minute, at first globose, then cupulate, at length expanded, white, glabrous; asci clavate-cylindrical; sporidia 8, oblong-elliptic, straight or curved, 2 to 3-guttulate, becoming 1 to 2-pseudo-septate, 8—12 × 3μ; paraphyses extremely slender.

Peziza (*Mollisia*) *filicum*—Phil., "Grevillea," xiii. p. 74.

On dead stems of *Lastrea Filix-mas.*

Cup 100 to 300μ broad.

This differs from *Peziza Aspidiicola* (B. and Br.) in the perfectly glabrous exterior of the cup, and the much larger and guttulate sporidia.

Name—*Filix*, a fern.

Shobden, Herefordshire!

B. SPORIDIA LINEAR OR SUBFUSIFORM.

34. *Mollisia incarnata.* (Cooke.)

Scattered, minute, roseate, sessile, cups soon expanded, nearly plane, externally paler; asci cylindrical; sporidia 8, linear, obtuse, hyaline, 10 × 1·5μ.

Peziza (*Mollisia*) *incarnata*—Cooke, "Grevillea," i. p. 131.

On pine-leaves.

Name—*Caro, carnis*, flesh; flesh-coloured.

Scotland (A. Jerdon).

35. *Mollisia dilutella.* (Fries.)

Gregarious, sessile, waxy soft, glabrous, at first hemispherical, then expanded, cinereous-white; margin entire,

prominent, whitish; sporidia 8, fusiform, straight or curved, 8—10 × 1—1·5μ. (Plate VI. fig. 34.)

Peziza dilutella—Fries, "Sys. Myco.," ii. p. 147. *Helotium xeroplasticum*—Rehm, "Asco.," No. 565. *Mollisia dilutella*—Gill., "Champ.," p. 131.

Exs.—Rehm, "Asco.," No. 565.

On dead stems of *Epilobium hirsutum*.

Cup about $\frac{1}{4}$ to $\frac{1}{2}$ a line broad.

Name—*Dilutus*, washed; pale-coloured.

Haughmond Hill, near Shrewsbury!

Var. *Smyrnii*. Phil. and Plow.

Gregarious, sessile, hemispherical, then expanded, fleshy, glabrous, pale argillaceous; margin minutely fimbriate; asci cylindraceo-clavate; sporidia 8, fusiform or cylindraceo-fusiform, 3-guttulate, 10—13 × 3μ; paraphyses filiform.

On dead stems of *Smyrnium*.

Differing very little from *P. dilutella*.

Name—*Smyrnium*, a genus of *Umbelliferæ*.

King's Lynn! (Mr. C. B. Plowright).

36. *Mollisia albula*. Phil.

Gregarious, minute, sessile, concave, becoming plane or convex, glabrous, shining, soft, fleshy, whitish; asci clavate; sporidia subcylindrical or fusiform, hyaline, 6—10 × 2μ; paraphyses filiform, slender.

On rabbit-dung.

Cup about 300 to 400μ broad, fleshy. The pseudoparenchyma consists of elongated, cylindrical cells.

Name—*Albulus*, somewhat white.

Forres, N. B.! (Rev. Dr. Keith).

37. *Mollisia flaveola*. (Cooke.)

Sessile, minute, bright yellow, submembranaceous; soft, soon becoming discoid, smooth, even; asci cylindrical, sporidia subfusiform, straight or curved, 8 × 2μ.

Peziza (*Mollisia*) *flaveola*—Cooke in "Grevillea," i. p. 131.

Exs.—Cooke's "Fung. Brit.," ed. ii. No. 550.
On fronds of *Pteris aquilina*. September.

Subgenus IV.—Mollisiella. Phil.

Sessile, hemispherical, then plane, soft, minutely furfuraceous or pulverulent, light-coloured (except *hydnicola*); sporidia globose, sub-elliptic or filiform. (Plate VI. fig. 35.)

Arrangement of the Species.

A.	Sporidia globose or subglobose	species 38, 39
B.	Sporidia sub-elliptic	„ 40
C.	Sporidia oblong-obtuse	„ 41
D.	Sporidia oblong-fusiform or fusiform ..	„ 42–45
E.	Sporidia linear	„ 46

Key to the Species.

	Hymenium dark green	*hydnicola.*
	Hymenium white	1
	Hymenium pallid: on pine-leaves	*pineti.*
	Hymenium brown	2
	Hymenium yellowish	3
1.	On wood	*Bullii.*
	On fern (*Pteris*)	*versicolor.*
	On herbaceous stems	*effugiens.*
2.	Exterior dirty white	*ilicincola.*
	Exterior rufous-brown	*lurida.*
3.	Exterior pale yellow; hymenium pinkish-yellow ..	*straminum.*
	Exterior honey-coloured; hymenium greenish-yellow	*Mali.*

A. SPORIDIA GLOBOSE OR SUBGLOBOSE.

38. *Mollisia ilicincola.* (B. and Br.)

Crowded or scattered, hemispherical, then expanded; externally dirty white, furfuraceous; hymenium concave, pale brown or purple, or rosy cinereous; margin erect or incurved; asci clavate; sporidia 8, globose, with a large globose gutta, 5μ; asci filiform, enlarged towards the summit.

Peziza ilicincola—B. and Br., "Ann. Nat. Hist.," No. 958, t. 16, f. 17; Cooke, "Handbk.," No. 2064.

On holly branches, more especially on the surface of the lichen *Myriangium*, which grows on holly. Winter.

Name—*Ilex*, holly, *colo*, to inhabit.

Chiselhurst! (Rev. M. J. Berkeley). Forres, N. B.! (Rev. Dr. Keith).

39. *Mollisia hydnicola.* (B. and Br.)

Cups orbicular, then irregular, plane, dark green; asci cylindrical; sporidia 8, subglobose, uniseriate; 10 × 7·5μ; paraphyses filiform, branched.

Peziza hydnicola—B. and Br., "Ann. Nat. Hist.," No. 1327, t. xx. f. 20; "Grevillea," i. p. 131.

On *Hydnum ochraceum.*

Conidia were observed in this species, 2·5 × 3·5μ.

Name—*Hydnum*, a genus of fungi, *colo*, to inhabit.

B. SPORIDIA SUB-ELLIPTIC.

40. *Mollisia Bullii.* (Wor. Smith.)

Cups hemispherical, at length irregular, sessile or very shortly stipitate, whitish; margin inflexed, rather pulverulent from the remains of the veil; hymenium often proliferous; mycelium brownish; asci subclavate; sporidia sub-elliptic, minute, 5—7·6μ long. (Plate VI. fig. 35.)

Peziza Bullii—W.G. Smith, *Gard. Chron.* (1873), with figure; B. and Br., "Ann. Nat. Hist.," No. 1324, t. 19, f. 17; "Grevillea," i. p. 120, t. viii. f. 3, vol. ii. p. 162.

On wooden cistern; December (W. G. Smith).

Name—After Dr. H. G. Bull.

C. SPORIDIA OBLONG-OBTUSE.

41. *Mollisia Mali.* (Rehm.)

Gregarious, small, at first globose, then urceolate, finally more or less expanded, pale honey-colour, pruinose; margin when dry involute, paler, scabrous; hymenium greenish yellow; asci clavate; sporidia oblong, obtuse, hyaline, 9 × 3μ; paraphyses filiform.

Pezizella Mali—Rehm, "Asco.," No. 460. *Peziza (Mollisia) Mali*—Phil. and Plow., "Grevillea," xiii. p. 74.

On dead holly bark.

Name—*Malus*, the specific name of *Pyrus malus*, the crab.

Near Shrewsbury!

D. SPORIDIA OBLONG-FUSIFORM OR FUSIFORM.

42. *Mollisia versicolor.* (Desm.)

Very minute, sessile, white-hyaline, fragile, glabrous, at first globose, then turbinato-concave, slightly furfuraceous externally; margin subdenticulate; asci clavate sporidia 8, oblong-fusiform, biseriate, 10—15 × 3μ.

Peziza versicolor—Desm., "Ann. Sc. Nat.," 1853, vol. xx. p. 230; Steven., "Myco. Scot.," p. 325; "Grevillea," viii. p. 102. *Phialea versicolor*—Gill., "Champ.," p. 106.

On fronds of dead *Pteris aquilina*. June.

Cups rarely exceed ·5 mm. in width; their consistence is very soft; colour pure milk-white, but the least bruising, or the prick of a pin, causes them to turn yellow (Desm.). I have not observed this in British specimens.

Name—*Versicolor*, changing colour.

Forres, N. B.! (Rev. Dr. Keith).

43. *Mollisia pineti.* (Batsch.)

Gregarious or scattered, sessile, nearly plane; margin inflexed, obtuse, when dry contracted to a globose form, firm, growing greyish brown, when young whitish granulate or furfuraceous; hymenium pallid or greyish white; asci cylindraceo-clavate; sporidia 8, oblong-fusiform or elongate-fusiform, 2-guttulate, 8—1·4 × 3μ; paraphyses filiform, stout.

Peziza pineti—Batsch, "El.," p. 201, f. 140; Fries, "Sys. Myco.," ii. p. 101; "Eng. Flo," v. p. 197; Karst., "Pez. et Ascob.," p. 20; "Mon. Pez.," p. 189; Nyl., "Pez. Fenn.," p. 52; Cooke, "Handbk.," No. 2050. *Pseudohelotium pineti*—Fckl., "Symb. Myco.," p. 298. *Lachnea pineti*—Gill., "Champ.," p. 83. *Helotium pineti*—Pat., p. 213, f. 493.

Exs.—Fckl., "F. Rh.," 1167; Rehm, "Asco.," 561.

On dead leaves of *Pinus sylvestris*.

Name—*Pinus*, the pine; from the habitat.

Don, near Aberdeen!

44. *Mollisia effugiens*. (Rob.)

Erumpent, very minute, sessile, glabrous, ivory-hyaline, at first globose, then concave; externally a little pulverulent; margin white, minutely denticulate; asci clavate; sporidia fusiform, 5—7 × 1μ; paraphyses filiform.

Peziza (*Phialea*) *effugiens*—Rob. in Desm., "Ann. Sc. Nat.," 1853, p. 19.

Exs.—Desm., "Crypt. Fr.," ser. ii. No. 16.

On dried stems of plants. In the spring.

The cups are about 500μ broad, scarcely distinguishable except when moist. They form groups either scattered or crowded, breaking through the epidermis. The asci are 40μ long.

Name—From *effugio*, to speedily pass away.

Almond Park, near Shrewsbury!

45. *Mollisia straminum*. (B. and Br.)

Crowded or scattered, sessile, hemispherical, then expanded, pale yellow, beset with refractive granules; hymenium pinkish yellow or flesh-colour; margin incurved; asci cylindraceo-clavate; sporidia 8, fusiform, straight or curved, 3 to 4-guttulate, 7—10 × 1·5μ; paraphyses extremely slender.

Peziza straminum—B. and Br., "Ann. Nat. Hist.," No. 571; Cooke, "Handbk.," No. 2062.

On dead sheaths of wheat and grasses.

"Minute, not exceeding ½ a line diameter; cups hemispherical, concave, sessile, or at length expanded; margin incurved; externally densely farinaceous, pale; internally of a pinkish-yellow or flesh-colour" (B. and Br.).

Name—*Stramin*, straw; growing on straw.

Fotheringhay, King's Cliffe; Rudloe, Wiltshire; on *Juncus*, Oxton, Nottinghamshire! (Rev. M. J. Berkeley).

E. SPORIDIA LINEAR.

46. *Mollisia lurida.* (Pers.)

Crowded or scattered, turbinate, then expanded, rufous-brown, whitish towards the margin, fibroso-striate; hymenium concave, pale rufous; margin erect; asci clavate; sporidia 8, narrowly linear, curved, multi-guttulate, 20—25 × 1μ; paraphyses filiform, slender.

Peziza lurida—Pers., "Syn. Fung.," p. 666.

On dead leaves of *Pinus sylvestris.*

Our plant agrees perfectly with] a specimen in herb. Fries, and is abundantly distinct from *Peziza pineti* (Batsch).

Name—*Luridus*, lurid; a dirty brown colour.

Mossburnford! (Mr. Jerdon in Kew Herbarium).

SUBGENUS V.—HYSTEROPEZIZA. Rabh.

Cups scattered, immersed; when moist erumpent, compressed, blackish.

Name—From *Hysterium* and *Peziza*, two genera of fungi.

One British species.

47. *Mollisia erumpens.* (Grev.)

Scattered, minute, concave, waxy, soft, glabrous, erumpent, sessile, cinereous, when dry concealed beneath the bark; asci clavate, slender; sporidia 8, cylindrical, rounded at the ends, sometimes slightly bent, 7 × 1·5μ; paraphyses filiform.

Peziza erumpens—Grev., "Crypt. Flo.," t. 99; "Eng. Flo.," v. p. 206; Berk., "Outl.," p. 371; Gonn. and Rabh., iii. t. 5, f. 6; Cooke, "Handbk.," No. 2111. *Mollisia erumpens*—Gill., "Champ.," p. 123.

Exs.—Desm., "Crypt. Fr.," ed. ii. No. 1345; Cooke, "Fung. Brit.," 566, ed. ii. 384; Phil., "Elv. Brit.," 35; Rabh., "Fung. Eur.," 1811; Rehm, "Asco.," 354.

On dead petioles of sycamore. Autumn.

Resembling to the naked eye an *Hysterium* when

dry; in moist weather distending the small slit in the bark of the petiole till it attains its round form, when the margin projects over the edge of the fissure.

Wherever decaying sycamore-leaves are found.

Name—*Erumpo*, to burst out; from its erumpent habit.

Subgenus VI.—Pseudo-peziza. Fckl.

Cups immersed, erumpent when moist, orbicular, glabrous, soft, plane or slightly concave; margin darker, sometimes bordered by the lacerated epidermis of the host-plant; sporidia subglobose, elliptic, oblong or pyriform. (Plate VI. fig. 36.)

Name—ψευδός, false, and *peziza*; deceptive peziza, resembling *Phacidium*

Arrangement of the Species.

A. Sporidia subglobose.
  (*a*) On herbaceous stems .. .. species 48
B. Sporidia elliptic or oblong.
  (*a*) On leaves or herbaceous stems .. „ 49, 50
C. Sporidia pyriform.
  (*a*) On leaves .. .. „ 51

Key to the Species.

Hymenium greyish-white: on *Euphorbia* .. .. *Euphorbiæ.*
Hymenium smoky-yellow: on *Trifolium* .. .. *Trifolii.*
Hymenium pallid-testaceous: on *Cerastium* .. *Cerastiorum.*
Hymenium ochraceous: on *Ranunculus* .. .. *Ranunculi.*

A. SPORIDIA SUBGLOBOSE.

(*a*) *On herbaceous stems.*

48. *Mollisia Euphorbiæ.* (B. and Br.)

Minute, erumpent, sessile, brownish-black; hymenium concave, white or greyish-white; margin prominent, incurved; asci broadly clavate, narrowing abruptly at the base; sporidia 8, globose-elliptic, 8μ long, and nearly as broad; paraphyses filiform, stout, clavate summits, filled with granular protoplasm.

Peziza Euphorbiæ—B. and Br., "Ann. Nat. Hist.," No. 1829; "Grevillea," viii. p. 8.

On stems of *Euphorbia amygdaloides*.

Cups 400μ broad.

Name—*Euphorbia*, a genus of *Euphorbiaceæ*, the spurges.

Batheaston! (Mr. C. E. Broome).

B. SPORIDIA ELLIPTIC OR OBLONG.

(*a*) *On leaves or herbaceous stems.*

49. *Mollisia Trifolii*. (Bernh.)

Gregarious, epiphyllous or rarely hypophyllous, minute, orbicular, at first covered, then erumpent; margin thin, lacerated; hymenium plane or convex, smoky yellow; asci clavate; sporidia 8, elliptic or oblong-elliptic, 2-guttulate, 10—15 × 5—7μ; paraphyses filiform, rather stout.

Ascobolus Trifolii—Bernh., "Manip.," iv. p. 27, t. 6, f. 5; Fries, "Sys. Myco.," ii. p. 165; Berk., "Eng. Flo.," v. p. 209; "Outl.," p. 374; Cooke, "Jour. Bot.," 1864. *Phacidium Trifolii*—Boud., "Ann. Sc. Nat.," 1869, p. 69; Cooke, "Handbk.," No. 2270; Sacc., "Mich.," No. vii. p. 331. *Peziza Trifoliorum*—Libert, "Crypt. Ard.," ex. No. 324. *Pseudo-peziza Trifolii*—Fckl., "Symb. Myco.," p. 290. *Favrœa congener* (Ces.)—Sacc., "Mich.," ii. p. 331. *Mollisia Trifoliorum*—Gill., "Champ.," p. 123, c. i.

Exs.—Libert, "Crypt. Ard.," 324; Berk., 69; Desm., "Crypt. Fr.," No. 520; Karst., "Fung. Fenn.," 933; Cooke, "Fung. Brit.," 331, ed. ii. 451; Winter, "Fungi Eur.," 2057; Roumg., "Fung. Gal.," 660.

On living clover-leaves.

Name—*Trifolium*, a genus of *Leguminosæ*, including clovers.

50. *Mollisia Cerastiorum*. (Wallr.)

Gregarious, minute, innato-sessile, glabrous, orbicular, nearly waxy, slightly concave, marginate, pallid testaceous, when moist paler; asci clavate or subfusiform;

sporidia 8, oblong, obtuse, 2-guttulate, 10 × 3μ; paraphyses filiform, slender. (Plate VI. fig. 36.).

Peziza Cerastiorum—Wallr. in Fries, "Sys. Myco.," ii. p. 153; Wallr., "Flo. Germ.," 465. *Phacidium Cerastiorum*—Gill., "Champ.," p. 169.

Exs.—Cooke, "Fung. Brit.," No. 655; Rabh., "Fung. Eur.," 1705 and 1705*b*.

On leaves of *Cerastium*.

Cups 300 to 500μ broad.

Name—*Cerastium*, a genus of *Caryophyllaceæ*.

King's Lynn! (Mr. C. B. Plowright).

C. SPORIDIA PYRIFORM.

(*a*) *On leaves.*

51. *Mollisia Ranunculi.* (Wallr.)

Hypophyllous, gregarious, on discoloured spots, erumpent, then sessile, orbicular; hymenium plane, at first ochraceous, then black; margin distinct, serrated, umber-brown, at length black; sporidia 8, pyriform, septate, 15 × 5μ; paraphyses filiform, sometimes branched.

Phlyctidium Ranunculi—Wallr., "Flo. Germ.," p. 416. *Dothidea Ranunculi*—Fries, "Sys. Myco.," ii. p. 562; Berk., "Eng. Flo.," v. p. 287. *Excipula Ranunculi*—Rabh., "Handbk.," 153. *Phacidium Ranunculi*—Cooke, "Handbk.," No. 2271; Gill., "Champ.," p. 168. *Phacidium litigiosum*—Rob. in Desm., "Ann. Sc. Nat.," t. 8, 1847, p. 181.

Exs.—Berk., 347; Desm., 1639; Fckl., "F. Rh.," 1175; Cooke, "Fung. Brit.," 280, ed. ii. 452; Rehm, "Asco.," 659; Kunze, "Fung. Sel.," 175, 381; Roumg., "Fung. Gal.," 544.

On fading leaves of *Ranunculus repens*, etc.

About 500μ broad.

Name—*Ranunculus*, a genus of *Ranunculaceæ*.

Forres! (Rev. Dr. Keith). Shere, Surrey! (Dr. Capron).

Subgenus VII.—Peristomialis.

Subcylindrical, sessile, fleshy, disc plane or slightly concave; margin furnished with triangular teeth; sporidia cylindraceo-filiform. (Plate VI. fig. 37.)

Name—περί, around, στόμα, the mouth; furnished with scales round the mouth, like the peristome of mosses.

Only one species.

52. *Mollisia peristomialis.* (B. and Br.)

Minute, cylindrical, pallid, mouth furnished with long white triangular teeth; hymenium nearly plane; asci lanceolate; sporidia biseriate, fusiform, multi-guttulate, 20—27 × 4—5μ. (Plate VI. fig. 37.)

Peziza (*Mollisia*) *peristomialis*—B. and Br., "Ann. Nat. Hist.," No. 1169, t. 5, f. 32; Cooke, "Handbk.," No. 2119.

On dead bark of holly.

About 300 to 400μ high, by 200μ broad.

Gregarious, at first globose, then elongated, and botuliform or subpyriform, truncate at the top, the hymenium scarcely depressed; the triangular teeth resemble those of *Peziza inflexa* (Bolt.); the sporidia are large, and furnished with 5 to 9 nuclei.

"A most exquisite object under a moderate magnifier, resembling some *Actinia* in miniature. Sporidia ·001 inch long" (B. and Br., *l. c.*).

Name—See under Subgenus.

Penzance (J. Ralfs, Esq.).

Series II.—VESTITÆ.

Genus VIII.—Lachnea. Fries.

Cups stipitate or sessile, fleshy, waxy or fibrous; clothed externally with more or less well-developed hairs. (Plates VI.–VII., figs. 38–42.)

Name—λάχνη, down; from the villous or hairy clothing.

ARRANGEMENT OF SUBGENERA.

I.	*Sarcoscypha*	1–7
II.	*Sepultaria*	8–18
III.	*Rhizopodella*	19
IV.	*Scutellinia*	20–37
V.	*Neotiella*	38–39

KEY TO THE SUBGENERA.

Cups stipitate	*Sarcoscypha.*
Cups seated on a mass of black hairs	*Rhizopodella.*
Cups immersed or semi-immersed in the soil ..	*Sepultaria.*
Cups sessile; hairs dark, rigid	*Scutellinia.*
Cups sessile; hairs nearly colourless	*Neotiella.*

SUBGENUS I.—SARCOSCYPHA.

Cups large, fleshy, distinctly stipitate; externally tomentose or hairy. (Plate VI. fig. 38.)

Name—*σάρξ*, flesh, *σκύφος*, a cup.

ARRANGEMENT OF THE SPECIES.

A.	Sporidia elliptic.	
	(*a*) Epispore asperate	species 1
	(*b*) Epispore smooth.	
	(*α*) Stem erect	„ 2–4
	(*β*) Stem rooting	„ 5–6
B.	Sporidia fusiform.	
	(*a*) Epispore asperate	„ 7

KEY TO THE SPECIES.

	Hymenium black	*corium.*
	Hymenium brown	1
	Hymenium yellow	2
	Hymenium carmine	*coccinea.*
1.	Exterior cinerascent; stem bulbous at base ..	*bulbosa.*
1.	Exterior blackish-brown, squamulose; stem equal	*helvelloides.*
1.	Exterior cinereous, hirto-verrucose; stem attenuated upwards	*macropus.*
2.	Exterior white, villous; disc sulphur-yellow ..	*radiculata.*
2.	Exterior whitish, tomentose; disc pale orange ..	*cocotina.*

A. SPORIDIA ELLIPTIC.

(*a*) *Epispore asperate.*

1. *Lachnea radiculata.* (Sow).

Cups subcæspitose, fleshy, hemispherical, then aplanate; stem thick, rooting; hymenium sulphureous;

externally white, villous; asci cylindrical; sporidia 8, elliptic, asperate, 16 × 10μ; paraphyses filiform. (Plate VI. fig. 38.)

Peziza radiculata—Sow., "Fung.," t. 114; Fries, "Sys. Myco.," ii. 81; Crouan, "Flo. Fin.," p. 52; "Eng. Flo.," v. p. 192; B. and Br., "Ann. Nat. Hist.," 1160*, t. 4, f. 23; Cooke, "Handbk.," 2015; "Grevillea," iii. fig. 92; Cooke, "Mycogr.," fig. 99. *Peziza Sowerbea*—Pers., "Myco. Eur.," p. 232. *Lachnea radiculata*—Gill., "Champ.," p. 66, c. i.

Exs.—Rabh., "Fung. Eur.," 618.

On the ground, in gardens and in fir woods, etc. Summer and autumn.

Cups 1 to 1½ inches broad; hairs septate, hyaline, rather long (M. C. Cooke). Somewhat reticulated externally, with irregular prominent veins, 1 inch or more broad (Berk. in "Eng. Flo.").

Name—*Radicula*, a little root; from the rooting base.

Dropmore, Jedburgh (Rev. M. J. Berkeley). Near Twycross (Rev. A. Bloxam). North Wootton (Mr. C. B. Plowright). Epping (Dr. M. C. Cooke). Stoke Newington (Mr. W. G. Smith).

Var. *Percevalii*. Phil.

Differing in the oblique cups (which resemble the species in *Otidea*) and the clavate paraphyses.

Name—After Mr. Cecil H. Spencer Perceval.

Stopham! (Mr. Cecil H. Spencer Perceval).

(*a*) *Epispore smooth.*

(*a*) *Stem erect.*

2. *Lachnea coccinea*. (Jacq).

Cups stipitate, infundibuliform; externally, as well as the stem, whitish, tomentose, with short adpressed down; disc carmine; asci cylindrical; sporidia 8, oblong-elliptic, smooth, 25—27 × 9μ; paraphyses linear.

Peziza coccinea—Jacq., "Misc. Austr.," t. 169; Fries, "Sys. Myco.," ii. 79; Nees, "Sys.," f. 288; Bolt., "Fung.," t. 104; Buxb., "Petr.," iv. t. 29, f. 4; Batt., t. 3, f. N, O;

Ray., "Syn.," iii. p. 19, No. 15; Karst., "Myco. Fenn.," p. 43; Gonn. and Rabh., "Myco. Eur.," iii. t. 4, fig. 5; Weinm., p. 434; Grev., 161; "Eng. Flo.," v. p. 192; Cooke, "Handbk.," 2012; Pat., p. 34, f. 80. *Peziza epidendra*—Bull., "Champ.," t. 467; Sow., "Fung.," t. 13. *Peziza poculiformis*—Hoffm., "Crypt.," t. 7, f. 5. *Plectania coccinea*—Fckl., "Symb. Myco.," p. 324. *Lachnea coccinea*—Gill., "Champ.," p. 66, c. i.

Exs.—Fckl., "F. Rh.," 1213; Rabh., "Herb. Myco.," i. 1020; Cooke, "Fung. Brit.," i. 651; Phil., "Elv. Brit.," 61; Ellis, "N. A. Fungi," 434.

On rotten branches. Spring.

Cups about 1 inch broad; stem ½ to 1 inch long. This is the most handsome species in our flora. Its nearly white tomentose exterior contrasts strongly with the carmine disc.

A single specimen with a white hymenium was said to have been found near Ipswich (*vide Science Gossip*, vol. xxi., 1885, p. 67).

Name—*Coccineus*, scarlet; from the colour of the hymenium.

Gillingham, Norfolk (Sowerby). Hitcham, Suffolk; Staffordshire; Kingston, near Taunton; and Kilmory, Argyleshire (Rev. M. J. Berkeley). Thringston and Gopsall (Rev. A. Bloxam). Ipswich (Mr. J. English). Thirsk (Mr. J. G. Baker). Epping; Shire Newton, near Chepstow; and Albury (Dr. M. C. Cooke). Coolcarrigan, co. Kildare! (Mr. Wilson). Bunwell and Cossey, Norfolk (Rev. K. Trimmer). North Wootton, Norfolk! (Mr. C. B. Plowright). Stoke, near Bristol (Mr. Cedric Bucknall). Church Stretton! and Hook-a-gate, Salop! Kerry Valley, Montgomeryshire! Malvern! (Mr. Jones). Cummersdale, Cumberland! (Dr. Carlyle).

3. *Lachnea corium.* (Weberb.)

Cups stipitate, waxy, when dry subcoriaceous, saucer-shape, becoming expanded, sometimes laterally compressed, black; externally velvety; stem equal or thickened below, deeply sulcate or subrugose, glabrous, paler at

the base; asci cylindrical; sporidia 8, rather broadly elliptic, at first guttulate, smooth, 18—20 × 10μ; paraphyses clavate, with brown apices.

Peziza corium—Weberb., "Pilze," t. iii. f. 7; Cooke, "Mycogr.," fig. 187; "Grevillea," v. p. 59. *Aleuria corium*, Gill., "Champ.," p. 39.

Exs.—Phil., "Elv. Brit.," No. 153; Rabh., "Fung. Eur.," 2209; Cooke, "Fung. Brit.," ed. ii. No. 552; Rav., "Fung. Am.," 760.

On the ground in sandy soil. Spring.

Cups ½ to 1½ inches broad; stem ½ to 1¼ inches long, and about 1 to 3 lines broad at the base, smaller above. The flesh is white; the cells which form the velvety surface of the exterior are composed of 4 to 8 in a chain, constricted at their junction, the chain very rarely branched. The brown apices of the paraphyses are often composed of nearly moniliform cells.

Name—*Corium*, leather; leather-like.

North Wootton! (Mr. C. B. Plowright).

4. *Lachnea bulbosa*. (Hedw.)

Cups hemispherical, becoming expanded, waxy, when dry subcoriaceous, cinerascent, minutely squamulose; hymenium blackish brown; stem firm, rather slender, arising from a tuber-form base; asci cylindrical; sporidia 8, broadly elliptic, 1-guttulate, gutta large, smooth, 15 × 10μ; paraphyses clavate at the apices.

Peziza bulbosa—Nees, "Sys.," f. 289; Fries, "Sys. Myco.," ii. 58; "Grevillea," iii. fig. 8; Cooke, "Mycogr.," fig. 189. *Octospora bulbosa*—Hedw., "Mus. Frond.," t. x. f. c. *Fungoides fuscum*—Buxb., "Petr.," iv. t. 29, f. 3; Schæff., t. 152. *Aleuria bulbosa*—Gill., "Champ.," p. 37, c. i.

Exs.—Rabh., "Fung. Eur.," 1308.

On the ground in sandy soil. Summer and autumn.

Cups ½ an inch to 1 inch broad; stem ½ an inch to 1 inch long, 1 line thick; flesh pale grey.

Name—*Bulbus*, a bulb; bulbous.

King's Lynn! (Mr. C. B. Plowright)

(β) *Stem rooting.*

5. *Lachnea helvelloides.* (Fries.)

Cup-shaped, complanate, then expanded, orbicular, becoming reflexed, blackish brown; externally, together with the equal stem, squamulose-scabrous; asci cylindrical; sporidia 8, elliptic, smooth, 15—17 × 10μ; paraphyses subclavate.

Peziza helvelloides—Fries, "Summa Veg. Scan.," 348; "Grevillea," iii. fig. 6; Cooke, "Mycogr.," fig. 190. *Helvella pezizoides*—Fries, "Sys. Myco.," ii. p. 20; Afz. in "Vet. Ac. Handl.," 1873, t. 10, f. 2; Sacc., "Myco. Ven. Sp.," p. 169; Karst., "Myco. Fenn.," p. 36; Fckl., "Symb. Myco.," 333. *Aleuria helvelloides*—Gill., "Champ.," p. 40.

Exs.—Rabh., "Fung. Eur.," ii. 237; Karst., "Fung. Fenn.," 446; Fckl., "F. Rh.," 1880; Rabh., "Herb. Myco.," ii. 26.

In pine woods and mossy places. Autumn.

Cup scarcely 1 inch broad; stem 1 to 2 inches high 1 to 2 lines thick.

Name—*Helvella*, a genus of fungi, εἶδος, likeness *Helvella*-like.

Northamptonshire (Rev. M. J. Berkeley).

6. *Lachnea cocotina.* (Cooke.)

Cups rooting, fleshy, hemispherical, becoming applanate; margin entire; hymenium pale orange; externally, together with the stem, whitish tomentose; asci cylindrical; sporidia 8, elliptic, hyaline, smooth, 18 × 10μ; paraphyses clavate.

Peziza cocotina—Cooke in "Grevillea," v. p. 61; "Mycogr.," fig. 356.

On cocoa-nut fibre in a caterpillar-cage, and on saw-dust. October.

Cups 1 inch diameter. In some points resembling *Peziza radiculata* (Sow.), in others *Peziza cerea* (Sow.), but differing from both (Cooke).

The tomentum consists of short flexuous hairs composed of 3 to 5 oblong cells, constricted at the joints.

Name—*Cocos*, the name of the cocoa-nut tree; growing on cocoa-nut fibre.

Epping (Mr. J. English). Edinburgh, Botanic Gardens (Dr. M. C. Cooke). Brandon, Norfolk! (Mr. C. B. Plowright).

B. SPORIDIA FUSIFORM.

(*a*) *Epispore asperate.*

7. *Lachnea macropus.* (Pers.)

Cups hemispherical, then expanded, hirto-verrucose, cinereous; hymenium mouse-brown; stem very long, attenuated upwards, even or irregularly lacunose, cinereous, nearly hairy; asci cylindrical; sporidia 8, fusiform elliptic, becoming slightly asperate, 30 × 10—12μ; paraphyses clavate at the apices.

Peziza macropus—Pers., "Obs.," ii. p. 26, t. 1, f. 2; "Flo. Dan.," t. 1200, f. 2; Fries, "Sys. Myco.," ii. 57; "Eng. Flo.," v. p. 189; Berk., "Outl.," 365; Cooke, "Handbk.," 1965; "Mycogr.," fig. 188; Grev., "Sc. Crypt. Flo.," t. 70; "Grevillea," iii. t. 27, fig. 7; Sturm., 31, t. 20, fig. *e*; Pat., p. 35, f. 34 (spor. not good). *Peziza stipitata*—Bull., "Champ.," t. 192 and 457, f. 2; Sow., "Fung.," t. 38. *Peziza hispida*—Schæff., "Icon.," t. 166; Bolt., t. 96. *Peziza sublicia*—Holms., "Ot.," ii. t. 10. *Macropodia macropus*—Fckl., "Symb. Myco.," p. 331; Sacc., "Myco. Ven. Sp.," p. 168. *Helvella macropus*—Karst., "Myco. Fenn.," p. 37. *Aleuria macropus*—Gill., "Champ.," p. 35, c. i.

Exs.—Desm., "Crypt. Fr.," i. 427; Karst., "Fung. Fenn.," 73; Fckl., "F. Rh.," 1234; Cooke, "Fung. Brit.," i. 289; Phil., "Elv. Brit.," 152; Rabh., "Fung. Eur.," 1413.

On the ground in shady woods. Summer and autumn.

Solitary, 1 to 3 inches high; cups 1 to 2 inches broad. The cups become expanded, and sometimes reflexed; the exterior is cinereous, and clothed with little hairy or villous warts, the hairs consisting of oblong

concatenate cells, their extremities free. The stem is enlarged downwards, often lacunose, occasionally becoming hollow with age.

Name—*μακρός*, large, *πούς*, a foot; large-stemmed.

Woods below Highfield, near Halifax (Bolton). Finchley Common (Sowerby). On the road from Dunnington to Pophill (Purton). Near Guildford (Hudson). Balmuto, N.B. (Dr. Greville). Forres, N.B.! (Rev. Dr. Keith). North Wootton! (C. B. Plowright). Farningham Earl (C. B. Plowright). Glamis (Rev. J. Stevenson). Epping Forest (Mr. English). Bishop's Wood, Hampstead; and Albury, Surrey (Dr. M. C. Cooke). Sufton Court, Herefordshire! Wrekin, Salop! Craigforda, near Oswestry! Tyntesfield, Bristol (Mr. C. Bucknall). Near Carlisle! (Dr. Carlyle).

Subgenus II.—Sepultaria. Cooke.

Cups fleshy, sessile, clad with coloured hairs; chiefly terrestrial. (Plate VI. fig. 39.)

Name—*Sepultus*, buried; from being immersed.

Arrangement of the Species.

A. Cups large, often immersed.
- (*a*) Sporidia globose .. .. .. species 8
- (*b*) Sporidia elliptic .. .. .. „ 9–14
- (*c*) Sporidia fusiform .. .. .. „ 15–16

B. Cups smaller; hairs often fasciculate.
- (*a*) Sporidia elliptic .. .. .. „ 17–18

Key to the Species.

	Hymenium brown	1
	Hymenium red	2
	Hymenium pallid-ochraceous	*Sumneriana.*
	Hymenium cinereous, livid, or bluish white ..	3
1.	Externally brown, having short hairs; cups immersed	*geaster.*
1.	Externally brown, having long flexuous hairs; cups immersed	*arenicola.*
1.	Externally brown, having longish rigid hairs; cups sessile	*gregaria.*
1.	Externally brown; hairs fasciculate; cups sessile..	*brunnea.*
2.	Externally brown; hymenium orange-red	*lapidaria.*
2.	Externally brown; hymenium deep flesh-red ..	*hybrida.*
2.	Externally scarlet	*hirto-coccinea.*
2.	Externally fulvous	var. *fulvo-coccinea.*

3. Externally brown, having long flexuous hairs; hymenium livid; cups immersed .. .. .. *sepulta.*
Externally brown, having long straight hairs; hymenium livid; cups sessile .. .. .. *hemispherica.*
Externally brown, having short rigid hairs; hymenium watery grey; cups sessile .. .. .. *Woolhopeia.*

A. CUPS LARGE, OFTEN IMMERSED.

(*a*) *Sporidia globose.*

8. *Lachnea brunnea.* (A. and S.)

Cups gregarious, subcæspitose, sessile, hemispherical, then depressed, subflexuose, brown, externally clothed with minute, rigid, fasciculate, brown, septate hairs; hymenium the same colour; asci cylindrical; sporidia 8, globose, asperate, 15—18μ; paraphyses slender, septate, apices clavate.

Peziza brunnea—A. and S. in "Consp.," p. 317. *Lachnea brunnea*—Gill., "Champ.," p. 72.

On the ground. November.

Cups 1 to 2 lines broad.

The above description embraces the characters of Albertini and Schweinitz's species, with the addition of microscopical characters of a plant referred to it by Mr. C. E. Broome, which agrees admirably in external characters. No original examples are at present known to exist either in American or British herbaria of Albertini and Schweinitz's species; there must always remain a doubt, therefore, whether we have the true plant.

Name—*Brunneus*, dark brown.

Near Hereford! (Mr. C. E. Broome).

(*b*) *Sporidia elliptic.*

9. *Lachnea sepulta.* (Fries.)

Cups sessile, subterranean, globose, at first closed, then opening by a narrow mouth, at length splitting into many unequal laciniæ; externally clothed with long, flexuose, branched, septate, brown hairs; hymenium urceolate, brownish or livid; asci cylindrical; sporidia 8,

broadly elliptic, 1 to 2 or several guttæ, smooth, 22—24 × 12μ; paraphyses stout, septate, apices clavate. (Plate VI. fig. 39.)

Peziza sepulta—Fries, "Nov. Symb. Myco.," 1851, p. 126; B. and Br., "Ann. Nat. Hist.," No. 766; Berk., "Outl.," p. 365; Cooke, "Handbk.," No. 2019; "Grevillea," iii. fig. 212; Cooke, "Mycogr.," fig. 112.

Exs.—Phil., "Elv. Brit.," 63; Cooke, "Fung. Brit.," ed. ii. No. 544.

On the ground, after autumnal rains.

Cups 1 to 2 inches broad, globose, clothed with dense woolly fibres, the upper portion often breaking off irregularly and so exposing the disc (B. and Br.).

This is very closely allied to *Peziza arenaria* (Osbeck) and *P. arenicola* (Lév.). It bears also a close resemblance to the genus *Hydrocystis*—Tul. (B. and Br.).

Name—*Sepultus*, buried.

East Bergholt (Rev. M. J. Berkeley). Forden, North Wales! (Rev. J. E. Vize).

10. *Lachnea geaster.* (B. and Br.)

Cups scattered, sessile, subterranean, globose, bursting into a few laciniæ; externally villose, brown; asci cylindrical; sporidia 8, broadly elliptic, 1-guttate, smooth, 18—23 × 10—11μ; paraphyses clavate at the apices.

Peziza geaster—B. and Br., "Ann. Nat. Hist.," 1866, Nos. 956 and 1162, t. 4, f. 26 (nec Gonn. and Rabh., iii. t. 3, f. 5); "Grevillea," iii. fig. 223; Cooke, "Handbk.," 2018; "Mycogr.," fig. 114.

Amongst comminuted stone and earth. October.

Cups about ½ an inch in diameter. The surface is not warty, as in *P. arenaria* (B. and Br.).

Name—γῆ, the earth, ἀστήρ, a star; *Geaster*, a genus of fungi, which it somewhat resembles.

Wentworth (Mr. J. Henderson). Lynn! (Mr. C. B. Plowright).

11. *Lachnea arenicola.* (Lév.)

Cups sessile, subterranean, subglobose, then cup-shaped, waxy, fibrillose, clothed with long, brown,

flexuous hairs, encrusted with sand; mouth constricted, becoming split and dentate; hymenium fuscescent; asci cylindrical; sporidia 8, broadly elliptic, 1-guttulate, smooth, 20 × 12μ; paraphyses clavate at the apices.

Var. *Bloxami.* (Cooke.)

Differs from the type in the colour of the disc, which is fleshy-ochraceous, and the larger sporidia.

Peziza Bloxami—Cooke, "Mycogr.," fig. 121.

On sandy ground.

Name—After the Rev. A. Bloxam.

Near Liverpool (Rev. H. H. Higgins).

12. *Lachnea lapidaria.* (Cooke.)

Hemispherical, then expanded; externally brown, clad with fascicles of rather rigid, straight, pointed, brown, septate hairs; hymenium orange-red; asci cylindrical; sporidia 8, elliptic, smooth, 16 × 8μ; paraphyses enlarged gradually from the centre upwards.

Peziza hybrida—Cooke in "Grevillea," vol. xii. p. 43.
Peziza lapidaria—Cooke in litt.

Growing between paving-stones in an area.

Cups $\frac{3}{4}$ of an inch in diameter; hairs 200μ long, 8μ broad.

Name—*Lapidarius,* pertaining to stones; growing between stones.

Bristol! (Mr. Cedric Bucknall).

13. *Lachnea hemispherica.* (Wigg.)

Cups scattered, sessile, at first globose, soon hemispherical, entire, the margin also becoming replicate; externally subfuscous, sparsely covered, especially near the margin, with fasciculate brown hairs; hymenium bluish white; asci cylindrical; sporidia 8, elliptic, 2-guttulate, smooth, 20—24 × 10—13μ mm.; paraphyses septate, clavate at the apices.

Peziza hemispherica—Wigg. in Hoffm., "Crypt.," ii. t. 7, fig. 6; Fries, "Sys. Myco.," ii. 82; "Flo. Dan.," t. 1558,

fig. 2; Karst., "Myco. Fenn.," 68; Weinm., p. 435; Crouan, "Flo. Fin.," p. 52; Kickx., "Crypt. Flan.," i. 492; Weberb., i. t. i. f. 4; "Eng. Flo.," v. p. 193; Berk., "Outl.," p. 367; Cooke, "Handbk.," No. 2016; "Mycogr.," fig. 115; Pat., p. 34, f. 82; "Grevillea," iii. fig. 95. *Octospora fasciculata*—Hedw., "Mus. Frond.," ii. t. 4, f. E. *Humaria hemispherica*—Fckl., "Symb. Myco.," p. 322. *Peziza labellum*—Bull., "Champ.," t. 204. *Peziza hirsuta*—Holms., "Öt.," ii. t. 19. *Elvela albida*—Schæff., "Icon.," t. 151, t. 319. *Peziza hispida*—Sow., "Fung.," t. 147. *Lachnea hemispherica*—Gill., "Champ.," p. 73, c. i.

Exs.—Fckl., "F. Rh.," 1211; Desm., "Crypt. Fr.," i. 1311; Rabh., "Fung. Eur.," 630; Karst., "Fung. Fenn.," 143; Rehm, "Asco.," 5; Ellis, "N. A. Fungi," 838; Phil., "Elv. Brit.," 159; Cooke, "Fung. Brit.," ed. ii. No. 553.

On the ground in shady places. Autumn.

Cups ½ to 1 inch broad; flesh brittle, between waxy and fleshy; externally dark brown or smoky-brown; hairs rigid, attenuated to a sharpish point, septate, fasciculate; sporidia showing a tendency in age to become rough. Usually on the surface of the ground; sometimes, however, they are somewhat immersed.

Name—*Hemisphæricum*, half a sphere.

Coed Coch, North Wales; Wrotham; and Linlithgow, N.B. (Rev. M. J. Berkeley). Ascot (Mr. C. E. Broome). Epping and Dinmore, Herefordshire (Dr. M. C. Cooke). Gopsall (Rev. A. Bloxam). Beeston, St. Andrew, Norfolk! (Mr. C. B. Plowright). Near Wrexham! (Mr. B. Acton). Wrekin, Salop! Boreatton Park! Bomere Wood! and Lilleshall, Salop!

14. *Lachnea hirto-coccinea.* Phil. and Plow.

Cups sessile, scattered or crowded, fleshy, hemispherical, then expanded, dull scarlet; clothed with scattered, pale brown, obtuse, septate hairs, longest on the incurved margin; hymenium same colour; asci cylindrical; sporidia 8, broadly elliptic, 1 to 2-guttulate, smooth, 22 × 11μ; paraphyses rather slender, apices clavate, filled with scarlet granules.

Peziza hirto-coccinea—Phil. and Plow. in "Grevillea," viii. p. 100; "Scott. Nat.," vi. 123.

On the ground in pine woods, in damp, mossy places.

Cups 2 to 4 lines broad. The hairs below the margin are shorter than those on the margin, and are often clavate, with or without septa. There is in some instances a conspicuous white mycelium below the cups.

Name—*Hirtus*, hairy, *coccineus*, scarlet; from the scarlet disc and hairy exterior.

Forres, N.B.! (Rev. Dr. Keith).

Var. *fulvo-coccinea*. Phil.

Externally fulvous, sporidia smaller, 15—22 × 10—12μ.

On the ground.

Name—*Fulvus*, tawny, *coccineus*, scarlet; from the scarlet disc and tawny exterior.

Near Wrexham! (Mr. T. B. Acton).

(*c*) *Sporidia fusiform.*

15. *Lachnea Sumneriana*. (Cooke.)

Cup large, scattered, waxy, sessile, at first globose, immersed, then partly exposed, becoming expanded, the margin splitting into irregular lobes; externally chestnut-brown, covered with a dense coating of long, slender, brown, flexuous, septate hairs; hymenium pallid-ochraceous, with a tint of flesh-colour; asci cylindrical; sporidia 8, broadly fusiform, nucleate, smooth, 30—32 × 12μ; paraphyses slender.

Peziza lanuginosa, var. *Sumneri*—Berk. in "Linn. Trans.," xxv. t. 55, fig. 1; Cooke, "Handbk.," p. 680, No. 2017; B. and Br., "Ann. Nat. Hist.," 1866, No. 1161, t. 4, f. 25; "Grevillea," iii. fig. 100; Cooke, "Mycogr.," fig. 111.

Exs.—Cooke, "Fung. Brit.," i. 471, ii. 362; Phil., "Elv. Brit.," 62; Rabh., "Fung. Eur.," 1419.

On the ground, under cedars, larch, etc. Spring.

Cup 1 to 2 inches broad. At first entirely buried, then forcing its way through the soil, and splitting into several lobes, like a *Geaster*, which it much resembles

from its thick substance. The outer coat is densely clothed with flexuous hairs; the sporidia are shortly and bluntly fusiform (B. and Br.).

Name—In honour of Mrs. Holme Sumner.

Fitcham Park (Mrs. Holme Sumner). Chiswick House! (Mr. Edmonds). Ware, Herefordshire (Mr. C. E. Broome). Guy's Cliff, Warwick (Dr. M. C. Cooke). Orton (Rev. M. J. Berkeley).

16. *Lachnea hybrida.* (Sow.)

Cups crowded or scattered, sessile, hemispherical; externally brown, paler towards the incurved margin, clothed with short, rigid, septate, brown hairs; hymenium deep flesh-red; asci cylindrical; sporidia 8, fusiform-elliptic, 2-guttulate, smooth, 21—25 × 8—10μ; paraphyses not seen.

Peziza hybrida—Sow. in "Eng. Fung.," t. 369, f. 1. *Peziza brunnea*—A. and S., of "Eng. Flo.," v. p. 193; Cooke, "Handbk.," No. 2020; "Mycogr.," fig. 126, *b*.

On the ground.

Cups 2 to 6 lines broad. Sowerby says, "This Peziza resembles *P. hispida* (*i.e. P. hemispherica*), and is hairy on the outside, but whiter; the inside partakes of the redness of *P. scutellata*. We have had it growing two or three years at Mead Place, without any considerable variation" (*l. c.*).

P. hispida (Sow.) has been usually quoted as a synonym of *P. brunnea* (A. and S.), erroneously, as it now appears, the original specimen having fortunately been found in Kew Herbarium. By the favour of Dr. Hooker we have been permitted to examine it, and have drawn up the above description.

B. CUPS SMALLER; HAIRS OFTEN FASCICULATE.

(*a*) *Sporida elliptic.*

17. *Lachnea gregaria.* (Rehm.)

Cups gregarious, sessile, hemispherical, concave; margin involute, becoming open, difformed, repand; ex-

ternally brown, covered with a very dense coat of rigid, fasciculate, brown, septate, strigose hairs; hymenium livid-brown, becoming pallid; asci cylindrical; sporidia 8, fusiform-elliptic, smooth, 22 × 10μ; paraphyses filiform, septate, apices slightly thickened.

Peziza gregaria—Rehm, "Asco.," No. 6; "Grevillea," iii. fig. 221; Winter in "Flora," 1873; Cooke, "Mycogr.," fig. 123. *Peziza hemispherica*, var. β. *proximella*—Karst., "Mon. Pez.," p. 125; Karst., "Myco. Fenn.," p. 69 (?). *Peziza hemispherica*, var. *minor*—Nyl. *Peziza brunnea*—Cooke in "Grevillea," iii. fig. 98.

Exs.—Cooke, "Fung. Brit.," ii. 368; Rehm, "Asco.," 6; Rabh., "Fung. Eur.," 1220; Desm., "Crypt. Fr.," 1312; Rabh., "Fung. Eur.," 1704.

On the ground in shady woods. Autumn.

Cups ½ to 1½ line broad. Sporidia sometimes externally minutely rough.

Name—*Grex*, a flock; growing in groups.

Dinmore, Herefordshire! Cirencester! (Mr. Joshua). Lyonshall, Herefordshire; and on burnt ground, Kew Gardens (Dr. M. C. Cooke).

18. *Lachnea Woolhopeia.* (Cooke and Phil.)

Cups scattered, sessile, hemispherical, becoming nearly applanate; externally clothed with erect, acute, septate, brown, fasciculate hairs; hymenium watery-grey; asci cylindrical; sporidia 8, broadly elliptic, 1-guttulate, smooth, 20—22 × 13—15μ; paraphyses filiform, apices clavate.

Peziza Woolhopeia—Cooke and Phil. in "Grevillea," vi. p. 75; Cooke's "Mycogr.," fig. 404; Pat., p. 74, f. 171.

On burnt ground in woods. Autumn.

Cups ½ to 1 line broad. Hairs fasciculate 150 to 200μ long, thick and brown at the base, pointed and hyaline above.

Name—After the Woolhope Field Club.

Downton, Salop! (Mr. Cecil H. Spencer Perceval).

SUBGENUS III.—RHIZOPODELLA. Cooke.

Cup fleshy, hemispherical; externally adpresso-tomentose; base rooting by means of coarse black hairs. (Plate VII. fig. 40.)

The coriaceous texture of the single British species of this subgenus suggests its removal to *Dermateæ*, near to *Encœlia*.

Name—ῥίζα, a root, πούς, a foot; from the fibrillose base.

19. *Lachnea melastoma*. (Sow.)

Cup substipitate, fleshy, subglobose; externally brick-red, flocculose; hymenium urceolate, black; stem short, rooting by means of thick, black, strigose filaments; asci cylindrical; sporidia 8, oblongo-elliptic, smooth, 25 × 9μ; paraphyses linear, apices subclavate. (Plate VII. fig. 40.)

Peziza melastoma—Sow., "Fung.," t. 149; Fries, "Sys. Myco.," ii. 80; Weinm., "Hym.," p. 434; "Eng. Flo.," v. p. 192; Berk., "Outl.," p. 367; Cooke, "Handbk.," 2013; "Grevillea," iii. fig. 90; "Mycogr.," fig. 103. *Peziza atrorufa*—Grev., t. 315. *Peziza rhizopus*—A. and S., "Consp.," p. 317, t. 1, f. 4; Crouan, "Flo. Fin.," p. 51. *Peziza crenulata*—Fckl., "Bot. Zeit.," 1861 (cum icone). *Plectania melastoma*—Fckl., "Symb. Myco.," p. 324. *Lachnea melastoma*—Gill., "Champ.," p. 66, c. i.

Exs.—Fckl., "F. Rh.," 1214, 1215; Rabh., "Fung. Eur.," 716.

On rotten sticks, etc. Spring.

Cup ½ to ¾ of an inch broad. This species varies greatly as to degree of pubescence, being sometimes almost naked, sometimes beset with down, or even bristly hairs; the base, however, is always furnished with long, black, rooting, strigose filaments ("Eng. Flo.").

Name—μέλας, black, στόμα, a mouth.

Hexam (Mr. Francis Scott). Auchindenny Wood, N.B. (Dr. Bainbridge). Bristol (Mr. C. E. Broome). Sussex (Mr. C. H. Spencer Perceval). Plas Newydd, North Wales (Rev. M. J. Berkeley). Bishop's Wood,

Hampstead (Dr. M. C. Cooke). Epping (Mr. Jas. English). Whitfield, near Hereford!

Subgenus IV.—Scutellinia. Cooke.

Cups sessile; externally clothed with coloured hairs; margin ciliated with erect, rigid hairs. (Plate VII. fig. 41.)

Name—*Scutella*, a little saucer.

Arrangement of the Species.

A. Sporidia globose.
  (*a*) Epispore echinulate .. .. species 20
  (*b*) Epispore smooth .. .. .. „ 21
B. Sporidia elliptic.
  (*a*) Epispore asperate.
    (*α*) Hymenium red, scarlet, or orange „ 22, 23
    (*β*) Hymenium yellow .. .. „ 24
    (*γ*) Hymenium livid .. .. „ 25
  (*b*) Epispore smooth.
    (*α*) Hymenium red or orange .. „ 26–31
    (*β*) Hymenium yellow .. .. „ 32–34
    (*γ*) Hymenium white or pallid.. „ 35–37

Key to the Species.

	Hymenium brown	*hinulea.*
	Hymenium red	1
	Hymenium yellow	4
	Hymenium white, cinereous, or livid	5
1.	Growing on dung of animals	2
	Growing on spent hops	*rubra.*
	Growing on wood	*scutellata.*
	Growing on the earth	3
2.	Hairs of the cup all simple	*coprinaria.*
	Hairs of the cup having stellate hairs intermixed near the base	*stercorea*
3.	Hairs of the cup pallid-tawny; sporidia globose	*trechispora.*
	Hairs of the cup short, bay; sporidia subglobose	*umbrorum.*
	Hairs of the cup short, brown, slender; sporidia oblong-elliptic	*hirta.*
	Hairs of the cup short, delicate, flexuous; sporidia elliptic	*umbrata.*
	Hairs of the cup short, brown, slender; sporidia elliptic	*carneo-sanguinea.*
4.	Hairs brown, bristle-like; sporidia asperate ..	*vitellina.*
	Hairs nearly colourless, longish, slender; exterior whitish	*theleboloides.*
	Hairs pale yellow, very long; exterior bright brown	*Dalmeniensis.*
	Hairs chiefly on the margin	*erecta.*

5.	Hairs long, straight, bulbous at the base; disc cinereous	*bulbocrinita.*
	Hairs short, reddish-brown; paraphyses clavate; disc white	*albo-spadicea.*
	Hairs short, erect, pale brown; paraphyses linear; disc white	*cretea.*
	Hairs short, obtuse, chiefly on the margin; disc livid-glaucous	*livida.*

A. SPORIDIA GLOBOSE.

(*a*) *Epispore echinulate.*

20. *Lachnea trechispora.* (B. and Br.)

Cups scattered, sessile, at first hemispherical, then expanded, nearly plane, orange-red; externally clothed with pallid, tawny, septate, somewhat rigid bristles; asci cylindrical; sporidia 8, globose, echinulate, 20μ; paraphyses clavate at the apices. (Plate VII. fig. 41.)

Peziza trechispora—B. and Br., "Ann. Nat. Hist.," xviii., 1846, p. 77; Cooke, "Handbk.," 2022; "Grevillea," iii. fig. 103; "Mycogr.," fig. 129. *Lachnea trechispora*—Gill., "Champ.," p. 77, c. i.

Exs.—Cooke, "Fung. Brit.," i. 288; Rabh., "Fung. Eur.," 26.

On damp ground in woods. Autumn.

Cups $\frac{1}{3}$ of an inch or more broad; marginal hairs slender, tapering upwards, short, septate, brown, 1 line long.

Name—*τραχύς*, rough, *σπόρος*, seed; rough-spored.

King's Cliffe; Aboyne; Hornstock; Powerscourt (Rev. M. J. Berkeley). Bristol; Batheaston (Mr. C. E. Broome). Forres, N.B. (Rev. Dr. Keith). Scot's Gap, Cambridgeshire (Mr. C. H. Spencer Perceval). Ventnor, Isle of Wight (Dr. M. C. Cooke). Glamis, N.B. (Rev. J. Stevenson). Dinmore, near Hereford! Bomere Pool, near Shrewsbury! Ercall Wood, Wellington, Salop! Ludlow! Wenlock Edge, Salop! Highgate (Dr. M. C. Cooke).

(*b*) *Epispore smooth.*

21. *Lachnea hinnulea.* (B. and Br.)

Cups scattered, sessile, hemispherical, then expanded, flexuose, marginate, between fleshy and waxy, chestnut-brown; margin fimbriate, with short brown hairs; asci cylindrical; sporidia 8, globose, with one large gutta, smooth, 12—14μ; paraphyses clavate at the apices.

Peziza hinnulea—B. and Br., "Ann. Nat. Hist.," No. 1320*; "Grevillea," ii. p. 129, 154; Cooke, "Mycogr.," fig. 52. *Peziza psammophila*—Berk. and Curtis, ined.

Exs.—Roumg., "Fung. Gal.," 2768.

On the ground amongst grass. Autumn.

Name—*Hinnuleus*, a young fawn; from the colour.

Powerscourt (Berkeley and Broome).

B. SPORIDIA ELLIPTIC.

(*a*) *Epispore asperate.*

(*a*) *Hymenium red, scarlet, or orange.*

22. *Lachnea umbrorum.* (Fckl.)

Cups scattered, sessile, at first hemispherical, then expanded, nearly plane, fleshy, vermilion or flesh-coloured, paler when dry; clothed externally with short, bay, septate, rather rigid bristles; asci cylindrical; sporidia 8, broadly elliptic, nearly globose, tuberculate, 20—22 × 18μ; paraphyses clavate at the apices, filled with red granules.

Peziza umbrorum—Cooke, "Mycogr.," fig. 138. *Humaria umbrorum*—Fckl., "Symb. Myco.," p. 323. *Peziza umbrosa*—Fries, "Sys. Myco.," ii. 85 (in part); B. and Br., "Ann. Nat. Hist.," 1866, No. 1163, t. 4, f. 28 (var. with globose sporidia). *Peziza umbrata*—Cooke, "Handbk.," No. 2024. *Lachnea umbrorum*—Gill., "Champ.," p. 209, c. i.

Exs.—Fckl., "F. Rh.," No. 2080; Phil., "Elv. Brit.," No. 65.

On damp ground in woods. Autumn.

Cups 3 to 5 lines broad; marginal hairs short, rather stout, septate, brown.

Name—*Umbrosus*, shady; growing in the shade.

Berwick (Dr. Johnstone). Wrexham! (Mr. B. Acton). Colwyn Bay (Dr. M. C. Cooke).

23. *Lachnea hirta.* (Schum.)

Cups sessile, scattered, subhemispherical, fleshy; margin somewhat inflexed; clothed externally with brown septate hairs, those on the margin short and slender; hymenium concave, scarlet; asci cylindrical; sporidia 8, oblong-elliptic, asperate, 25 × 10μ; paraphyses clavate at the apices, filled with orange granules.

Peziza hirta—Schum., "Saell.," p. 422; Fries, "Sys. Myco.," ii. 84; Pers., "Myco. Eur.," p. 245; Crouan, "Flo. Fin.," p. 51; B. and Br., 'Ann. Nat. Hist.," No. 557, 768; Cooke, "Handbk.," No. 2021; "Mycogr.," fig. 128. *Peziza scutellata*—Cooke, "Fung. Brit.," ii. 187; "Grevillea," iii. fig. 218. *Lachnea hirta*—Gill., "Champ.," p. 75, c. i.

Exs.—Cooke, "Fung. Brit.," i. 576, ii. 187; Phil., "Elv. Brit.," 19; Wright, "Cub.," 671; Rabh., "Fung. Eur.," 27.

On the ground, etc. Autumn.

Cups 2½ lines broad; marginal hairs short, slender, septate, brown, 200 to 300μ long (Cooke).

Name—*Hirtus*, hairy.

Wimbledon Common (Mr. C. E. Broome). Coed Coch (Rev. M. J. Berkeley). Wareham (Rev. W. Smith). Epping Forest; Dalmeny; Ken Wood, Hampstead; and Highgate (Dr. M. C. Cooke). Forres, N.B.! (Rev. Dr. Keith). Llanrwst, North Wales! near Shrewsbury!

(β) *Hymenium yellow.*

24. *Lachnea vitellina.* (Pers.)

Cups subcæspitose, sessile, hemispherical, at length expanded and flexuose; margin furnished with brown, septate bristles; hymenium bright yellow; asci cylin-

drical; sporidia 8, broadly elliptic, asperate, 22 × 15μ; paraphyses clavate at the apices, filled with yellow granules.

Peziza vitellina—Pers., "Myco. Eur.," p. 257; Fries, "Sys. Myco.," ii. 84; "Eng. Flo.," v. p. 193; Cooke, "Handbk.," No. 2023; B. and Br., "Ann. Nat. Hist.," 1866, No. 1163*, t. 4, f. 29; "Grevillea," iii. fig. 110; Cooke, "Mycogr.," fig. 143. *Lachnella vitellina*—Gill., "Champ.," p. 74.

On the ground. Autumn.

Cups 2½ lines broad; hairs rather long, septate, coloured.

Name—*Vitellus*, the yolk of an egg; from its colour.

Appin (Carmichael). Wareham (Mr. C. E. Broome). Coed Coch, North Wales (Rev. M. J. Berkeley). Worlaby! (Mr. C. H. Spencer Perceval).

(γ) *Hymenium livid.*

25. *Lachnea livida.* (Schum.)

Cups gregarious, sessile, hemispherical, becoming plane; externally fuliginous, clothed with long, strigose, septate, brown hairs, those on the margin short, stout, and obtuse; hymenium livid-glaucous; asci cylindrical; sporidia 8, broadly elliptic, minutely asperate, 20 × 10μ; paraphyses linear, clavate at the apices.

Peziza livida—Schum., "Saell.," ii. p. 422; "Flo. Dan.," t. 1915, f. 3; Fries, "Sys. Myco.," ii. 86; Weinm., p. 438; "Grevillea," iii. fig. 222; Cooke, "Mycogr.," fig. 139. *Peziza scutellata*—Batsch., "Cont.," f. 154. *Humaria livida*—Fckl., "Symb. Myco.," 322 (?). *Lachnea livida*—Gill., "Champ.," p. 73.

On rotten wood. Spring.

Cups 2½ lines broad; marginal hairs short, broad, obtuse, septate, brown, 200 to 250μ long. *Peziza cærulea* (Bolt., "Fung.," t. 108, fig. 2) is allied to this species (Cooke).

Name—*Lividus*, a pale lead-colour.

Dumfriesshire (Sir W. Jardine).

(*b*) *Epispore smooth.*

(*a*) *Hymenium red or orange.*

26. *Lachnea carneo-sanguinea.* (Fckl.)

Cups scattered or gregarious, fleshy, sessile; externally, as well as the straightly elevated margin, dilutely brown, clothed with short, septate, rather slender, brown hairs; hymenium at first concave, then plane, between flesh-colour and blood-red; asci cylindrical, stipitate; sporidia 8, elliptic, 2 to 3-guttulate; smooth, dilutely flesh-coloured, 20 × 10μ; paraphyses simple, clavate at the apices.

Humaria carneo-sanguinea—Fckl., "Symb. Myco.," p. 326; "Grevillea," iii. fig. 107.

Exs.—Fckl., "F. Rh.," No. 2288.

On the ground.

Cups 1 to 2 lines broad (Fckl.).

Name—*Caro*, flesh, *sanguis*, blood; blood-red, flesh-colour.

27. *Lachnea umbrata.* (Fries.)

Sessile, fleshy, concave or nearly plane; hymenium vermilion flesh-colour, when dry paler, clothed with short, rigid, brown, septate hairs; asci cylindrical; sporidia elliptic, smooth, 18 × 9μ; paraphyses thickened upwards.

Peziza umbrata—Fries, "Summa Veg. Scan.," p. 351; Karst., "Myco. Fenn.," p. 69; "Grevillea," iii. fig. 112; Cooke, "Mycogr.," 137. *Peziza umbrosa*—Fries, "Sys. Myco.," ii. 85 (in part); Kickx., "Flo. Flan.," i. p. 491.

On the ground. Autumn.

Cups 3 lines broad; marginal hairs short, delicate, somewhat flexuous, septate (Cooke, *l. c.*).

Name—*Umbra*, a shade; shaded.

Surrey (Mr. T. Howse). Clifton, Bristol! (Mr. C. Bucknall). Shelton Rough, Shrewsbury!

28. *Lachnea scutellata.* (Linn.)

Cups gregarious, sessile, hemispherical, at length plane; externally red, hispid towards the margin with

straight, long, septate, black-brown hairs; hymenium vermilion-red; asci cylindrical; sporidia 8, broadly elliptic, granular within, smooth, 20—22 × 11—13μ; paraphyses clavate at the apices, filled with orange granules.

Peziza scutellata—Linn., "Suec.," 458; Fries, "Sys. Myco.," ii. 85; Sow., "Fung.," t. 24; Bull., "Champ.," p. 247, t. 10; "Flo. Dan.," t. 1457, f. 2; Karst., "Myco. Fenn.," p. 70; Weinm., p. 437; Kickx., "Flo. Flan.," i. p. 491; "Eng. Flo.," v. 193; Cooke, "Handbk.," No. 2025; Weberb., i. t. 3, f. 3; "Grevillea," iii. fig. 114; Cooke, "Mycogr.," fig. 131; Pat., p. 34, f. 81. *Elevela ciliata*—Schæff., "Icon.," t. 284. *Peziza ciliata*—Hoffm., "Crypt.," ii. p. 25, t. 7, f. 3; Holms., "Ot.," ii. p. 56, t. 18. *Octospora scutellata*—Sch., "Flo. Bar.," ii. 504. *Octospora hirta*—Hedw., "Mus. Frond.," t. 3, B. *Humaria scutellata*—Fckl., "Symb. Myco.," p. 321. *Lachnea scutellata*—Gill., "Champ.," p. 75.

Exs.—Fckl., "F. Rh.," 1210; Desm., "Crypt. Fr.," i. 702; Karst., "Fung. Fenn.," 144; Phil., "Elv. Brit.," 64; Roumg., "Fung. Gal.," 2948; Cooke, "Fung. Brit.," ed. ii. No. 554.

On rotten wood in damp places. Autumn.

Cups 2½ to 3 lines broad; marginal hairs long (600μ), septate, brown, attenuated in the upper half.

Name—*Scutella*, a little saucer.

King's Cliffe; Bodelwyddan, North Wales; Coed Coch, North Wales; Stanton, Aboyne (Rev. M. J. Berkeley). Langridge, Somerset (Mr. C. E. Broome). Argyleshire (Paterson). Wingfield; Abinger, Surrey; Sutton Park, Birmingham; Edinburgh, Glasgow (Dr. M. C. Cooke). Fern, N.B. (Rev. J. Fergusson). Preston, Salop (Rev. W. Houghton). Wrexham! (Mr. B. Acton). Llyn Idwell, North Wales! Downton, near Ludlow! Aberystwith! Bomere Pool, near Shrewsbury! Almond Park, near Shrewsbury!

29. *Lachnea stercorea*. (Fries.)

Cups gregarious, sessile, fleshy, when young closed and subglobose, then concave, at length plane, dingy red,

beset with brown septate hairs of two kinds—marginal long, rigid, ciliating, below stellate or peltate; hymenium red or dull red; asci cylindrical; sporidia 8, broadly elliptic, smooth, 20—22 × 8—9μ; paraphyses clavate at the apices, filled with red granules.

Peziza stercorea—Pers., "Obs.," ii. p. 89; Fries, "Sys. Myco.," ii. 87; Karst., "Myco. Fenn.," p. 71; Weinm., p. 439; Crouan, "Flo. Fin.," p. 52; Kickx., "Flo. Flan.," i. 491; "Eng. Flo.," v. p. 194; Cooke, "Handbk.," No. 2028; "Grevillea," iii. fig. 117; "Mycogr.," fig. 147. *Peziza lutea*—Reich. in "Berl. Ges. Natur.," iii. p. 216, t. 4, f. 7. *Peziza equina*—"Flo. Dan.," t. 779, f. 3; Sow., "Fung.," t. 352. *Octospora scutellata*—Hedw., "Mus. Frond.," ii. t. 3, f. A. *Peziza scutellata*—Bolt., "Fung.," t. 108, f. 1. *Peziza ciliata*—Bull., "Champ.," p. 257, t. 438, f. 2. *Humaria stercorea*—Fckl., "Symb. Myco.," p. 321. *Lachnea stercorea*—Gill., "Champ.," p. 76.

Exs.—Fckl., "F. Rh.," 2081 (?); Karst., "Fung. Fenn.," 633.

On cow, horse, and rabbit dung, and rich soil. Spring and summer.

Name—*Stercus*, dung; from its habitat.

Wood Newton; West Farleigh; Caradoc; Coed Coch (Rev. M. J. Berkeley). Epping Forest and Highgate (Dr. M. C. Cooke). Jedborough (Sir W. Jerdon). Twycross (Rev. A. Bloxam). Wrekin, Salop!

30. *Lachnea coprinaria*. (Cooke.)

Cups subgregarious, sessile, fleshy, hemispherical, then plane; margin elevated, orange-red or scarlet, clothed with pale, brown, septate hairs; asci cylindrical; sporidia 8, elliptic, smooth, 18—20 × 10μ; paraphyses clavate at the apices, filled with orange granules.

Peziza coprinaria—Cooke in "Grevillea," iv. p. 91; "Mycogr.," fig. 149.

On cow-dung. Autumn.

Cups 5 lines broad; external cells of cup very large; marginal hairs long, simple, septate, ½ mm. long, mixed with others that are shorter, mostly confined to the

margin, not branched or stellate. Cups remain flattened in drying (Dr. M. C. Cooke).

Name—*Coprus*, dung; from its habitat.

Loughton, Essex (Dr. M. C. Cooke). Rannoch, N.B. (Dr. Buchanan White). Batheaston (Mr. C. E. Broome).

31. *Lachnea rubra.* (Cooke.)

Cups gregarious, fleshy, subglobose, becoming expanded; margin elevated, orange-red, beset with short, brown, septate hairs; asci cylindrical; sporidia 8, elliptic, smooth, 18—20 × 10μ; paraphyses clavate at the apices.

Peziza rubra—Cooke in "Mycogr.," fig. 152. *Peziza theleboloides* (A. and S.), var. *rubra*—Cooke in "Fung. Brit.," ser. i. No. 572; "Grevillea," iii. fig. 119.

Exs.—Cooke, "Fung. Brit.," i. 572, ii. 186.

On spent hops.

Cups about 2½ lines broad; hairs reddish brown, about 200μ long, two or three times as thick as in *P. theleboloides*, with which species it has been confounded. Although growing in company, there appears to be good grounds for regarding them as distinct (Dr. M. C. Cooke, *l. c.*).

Name—*Ruber*, red.

Batheaston, near Bath (Mr. C. E. Broome).

(β) *Hymenium yellow.*

32. *Lachnea theleboloides.* (A. and S.)

Cups gregarious or crowded, fleshy, at first subglobose, then hemispherical, at length expanded, flexuose; externally whitish, clothed with slender, septate, nearly colourless hairs; hymenium pale yellow; asci cylindrical; sporidia 8, elliptic, smooth, 12—14 × 7μ; paraphyses filiform, clavate at the apices.

Peziza theleboloides—A. and S., "Consp.," p. 322, t. 12, f. 4; Fries, "Sys. Myco.," ii. 88; Cooke, "Handbk.," No. 2029; B. and Br., "Ann. Nat. Hist.," No. 1065, t. 15, fig. 17; "Grevillea," iii. fig. 118; Cooke, "Mycogr.," fig. 151. *Lachnea theleboloides*—Gill., "Champ.," p. 74.

Exs.—Phil., "Elv. Brit.," 20; Rabh., "Fung. Eur.," 621; Cooke, "Fung. Brit.," i. 571, ii. 185.

On spent hops.

Cups 2½ lines broad; at first obovate or subcylindrical, concave, and expanded, when mature of a bright orange colour within; beset externally with delicate, erect, white hairs, which are hyaline under the microscope; seated at first on a delicate white subiculum, which disappears as the plant advances to maturity, and the cups become crowded (B. and Br.).

Name—*Thelebolus*, a genus of fungi, εἶδος, likeness; *Thelebolus*-like.

Bathealston, near Bath; Ilford (Mr. C. E. Broome). Manor House, Ealing! (Mr. C. H. Spencer Perceval). Glamis, N.B. (Rev. J. Stevenson). Shrewsbury!

33. *Lachnea erecta.* (Sow.)

Cups gregarious or crowded, subcylindrical, smooth, yellowish, at length dilated; mouth erect, subciliate.

Peziza erecta—Sow. in "Eng. Fung.," t. 369, figs. 10, 11; Fries, "Sys. Myco.," ii. p. 69; "Eng. Flo.," v. p. 194; Cooke, "Handbk.," No. 1996.

"On very wet moss in damp places. Cups 2 lines high, oblong and upright, but sometimes short and clumsy, often spreading; sometimes destitute of hairs, sometimes ciliated, sometimes furnished with both hairs and ciliæ; varying from a deep red to greenish-yellow and pale yellow" (Sow., *l. c.*).

"This species is placed by Fries in the series *Aleuria* and subgenus *Humaria;* but its affinity seems to be much greater to the species of the present genus (*Sarcoscypha*), if indeed it be not a form of *P. thelebolοides*, A. and S. The smooth state on moss may possibly be *P. axillaris.* Unfortunately, no specimens appear to have been preserved" (Berkeley, *l. c.*).

Dr. Cooke remarks in "Mycographia," under *P. pulcherrima*, Cr. (fig. 154), *Peziza erecta*, Sow., is evidently allied to this species.

We prefer to retain this, as its alliance is tolerably evident.

Name—*Erectus*, erect; from its erect form.

34. *Lachnea Dalmeniensis.* (Cooke.)

Cups sessile, fleshy, hemispherical, becoming expanded, bright yellow, beset with long erect, septate, pale yellow hairs; margin elevated; hymenium same colour; asci cylindrical; sporidia 8, elliptic, smooth, 12 × 7μ; paraphyses clavate at the apices.

Peziza Dalmeniensis—Cooke in "Grevillea," iii. p. 66, t. 34, fig. 121; "Mycogr.," fig. 153.

Exs.—Phil., "Elv. Brit.," No. 110.

On the ground in shady woods, often amongst nettles. Autumn.

Cups 5 lines broad; hairs 600μ long, septate, tawny yellow. Resembles in some features *P. theleboloides* (Dr. M. C. Cooke).

The hairs in my specimens were pale yellow, nearly colourless under the microscope.

Name—After Dalmeny in Scotland.

Dalmeny, N.B. (Dr. M. C. Cooke). King's Lynn! (Mr. C. B. Plowright). Warlaby, near Lowth! (Mr. C. H. Spencer Perceval). Wrekin, Salop!

(γ) *Hymenium white or pallid.*

35. *Lachnea bulbo-crinita.* Phil.

Cups scattered, sessile, hemispherical, then expanded, fleshy; externally dusky brown, clothed with long, straight, brown, septate hairs, bulbous at the base; hymenium pallid or cinereous; asci cylindrical; sporidia 8, elliptic, smooth, 20 × 13μ; paraphyses filiform.

Peziza bulbo-crinita—Phil., "Scott. Nat.," vi. 123.

On dead branches. Autumn.

Cups 1½ lines broad, at first closed, then concave; margin ciliated with long erect hairs (½ a line), intermixed with shorter (300μ), all having a bulbous basal cell. The disc is slate-colour. Allied to *Peziza erinacea*,

Shwz., but hairs much longer, with a bulbous base, a darker disc, and paraphyses not enlarged at the summits.

Name—*Bulbus*, a bulb, *crinis*, hair; from its bulbous hairs.

Forres, N.B.! (Rev. Dr. Keith).

36. *Lachnea albospadicea.* (Grev.)

Cups gregarious, sessile, subglobose, then hemispherical, at length plane, fleshy; external surface and margin strigose with short, septate, reddish-brown hairs; hymenium white; asci cylindrical; sporidia 8, elliptic, 1-guttulate, smooth, 20 × 9—10μ; paraphyses clavate at the apices.

Peziza albospadicea—Grev., "Flo. Edin.," p. 420; "Eng. Flo.," v. 194; Cooke, "Handbk.," No. 2030; "Mycogr.," fig. 141.

On the ground in woods. Autumn.

A fine species, about 2 lines broad, globose when young, gradually becoming plane; hymenium white, smooth, with a slight tinge of grey in moist weather. External surface covered with reddish-brown hairs, which form also a border to the hymenium (Grev., *l. c.*).

Hairs very short and delicate, about 100μ long (Cooke, *l. c.*).

Name—*Albus*, white, *spadiceus*, bay; from the colour.

Foxhall, near Edinburgh (Messrs. Wauch and Greville). Henbury, near Bristol (Mr. C. H. Spencer Perceval).

37. *Lachnea cretea.* (Cooke)

Cups subgregarious, sessile, hemispherical, at length expanded; external surface and margin beset with erect, short, brown, septate hairs; hymenium white; asci cylindrical; sporidia 8, elliptic, colourless, smooth, 12—18 × 8μ; paraphyses linear.

Peziza cretea—Cooke, "Trans. Bot. Soc. Edin.," 1877, p. 46, t. 3, K–N; "Grevillea," vi. p. 75, t. 97, fig. 4–7; "Mycogr.," fig. 362.

On plaster walls and ceiling exposed to the weather by the burning of the roof.

Cups 1 to 2½ lines broad; external hairs straight, attenuated upwards, 150μ to 200μ long (Dr. Cooke, *l. c.*).

Name—*Creta*, chalk.

Walls of Inverleith House, Edinburgh! (Professor Balfour).

Subgenus V.—Neottiella. Cooke.

Cups sessile; externally albo-tomentose. (Plate VII. fig. 42.)

Name—*νεοττιά*, a nest; resembling a little nest.

Arrangement of the Species.

A. Sporidia asperate	species 38
B. Sporidia smooth	„ 39

Key to the Species.

Hymenium orange	*Cornubiensis.*
Hymenium bright scarlet	*crucipila.*
Hymenium blue	*cærulea.*

A. SPORIDIA ASPERATE.

38. *Lachnea Cornubiensis.* (B. and Br.)

Cups sessile, fleshy, nearly plane, affixed to the soil by villous down, the margin alone free; externally clothed with delicate, obtuse, septate hairs; hymenium orange; asci cylindrical; sporidia 8, oblongo-elliptic, asperate, 18—22 × 13μ; paraphyses linear. (Plate VII. fig. 42.)

Peziza Cornubiensis—B. and Br., "Ann. Nat. Hist.," No. 767; Berk., "Outl.," p. 366; Cooke, "Handbk.," No. 1993; "Mycogr.," fig. 309.

On manured ground.

Cups ¾ of an inch broad, depressed. A very fine species (B. and Br., *l. c.*).

Name—*Cornubia*, the Latin name of Cornwall.

Penzance (Mr. Tracy Millett).

B. SPORIDIA SMOOTH.

39. *Lachnea crucipila.* (Cooke and Phil.)

Cups scattered, sessile, fleshy, hemispherical, then plane; externally pale scarlet, clothed with pale brown, forked or cruciate, septate hairs; hymenium bright scarlet; asci cylindrical; sporidia 8, oblong-elliptic,

smooth, 20 × 9μ; paraphyses clavate at the apices, filled with orange-red granules.

Peziza crucipila—Cooke and Phil. in "Mycogr.," fig. 237; Pat., p. 209, f. 481. *Lachnea crucipila*—Gill., "Champ.," figure only.

Exs.—Cooke, "Fung. Brit.," ed. ii. 647.

On the earth in shady damp places in woods. Summer and autumn.

Cups ½ to 1 line broad. The forked hairs, which are intermixed with simple ones, are 200μ long.

Name—*Crux*, a cross, *pilus*, the hair.

Downton Castle, Herefordshire! Newport, Salop! Highgate and Heywood Forest (Dr. M. C. Cooke).

Doubtful species.

Lachnea cærulea. (Bolt.)

Plane, ciliated, black and smooth externally; hairs soft, pallid; disc bright blue.

Peziza cærulea—Bolt., t. 108, f. 2; Fries, "Sys. Myco.," ii. p. 86; "Eng. Flo.," v. p. 193; Cooke, "Handbk.," No. 2026. *Lachnea cærulea*—Gill., "Champ.," p. 73.

On putrid wood, in moist places under fir-trees; very rare. October.

Cups about 2 lines broad.

This has not been observed since Bolton's time. May he not have had before him young specimens of *Corticium cæruleum* (Fries), which often assume a form agreeing with his figure? Compare his figure (108, f. 2) with Sowerby's 350.

Genus IX.—Lachnella. Fries (amended).

Cups small, stipitate or sessile; flesh thin, firm, waxy; externally pilose or villous; asci cylindrical or subclavate; sporidia 8, colourless; paraphyses filiform or acerose. (Plates VII., VIII. figs. 43–49.)

Name—Diminutive of the preceding genus.

ARRANGEMENT OF THE SUBGENERA.

I.	*Dasyscypha*	1–36
II.	*Lachnella*	37–70
III.	*Fibrina*	71–73

KEY TO THE SUBGENERA.

	Cups furnished with a stem	*Dasyscypha.*
	Cups sessile or subsessile	1
1.	Flesh dry; cups externally fibroso-striate	*Fibrina.*
	Flesh softer; cups externally pilose or villous	*Lachnella.*

SECTION I.—STIPITATE.

SUBGENUS I.—DASYSCYPHA. Fries.

Cups slender, waxy, dry; disc glabrous; externally pilose or villous, stipitate; paraphyses filiform or acerose. (Plates VII., VIII. figs. 43–46.)

ARRANGEMENT OF THE SPECIES.

A.	Hairs of cup coloured.	
	(*a*) Sporidia elliptic.	
	(*α*) Paraphyses filiform	species 1
	(*β*) Paraphyses acerose	„ 2
	(*b*) Sporidia fusiform.	
	(*α*) Paraphyses filiform	„ 3–5
	(*β*) Paraphyses acerose	„ 6–10
B.	Hairs of cup hyaline.	
	(*a*) Sporidia globose.	
	(*α*) Paraphyses filiform	„ 11
	(*b*) Sporidia oblong-elliptic.	
	(*α*) Paraphyses filiform	„ 12–14
	(*c*) Sporidia fusiform.	
	(*α*) Paraphyses filiform	„ 15–22
	(*β*) Paraphyses acerose	„ 23–32
	(*d*) Sporidia elongato fusiform or filiform.	
	(*α*) Paraphyses acerose	„ 33–35
C.	Position doubtful; sporidia subglobose	„ 36

KEY TO THE SPECIES.

A. HAIRS OF CUP COLOURED.

	Hymenium some shade of brown	1
	Hymenium yellowish	*cerina.*
	Hymenium pallid	2
1.	Externally sugar-coloured; paraphyses filiform	*Stevensoni.*
	Externally tawny; paraphyses filiform	*fuscescens.*
	Externally fawn-colour; paraphyses acerose	*clandestina.*
	Externally umber-brown; paraphyses acerose	*ericæformis.*
	Externally yellowish-brown; paraphyses acerose	*caulicola.*

2.	Externally vinous-brown; paraphyses filiform	*diplocarpa.*
	Externally pale brown; paraphyses filiform	*trichodea.*
	Externally pale brown; paraphyses acerose	*brunneola.*
	Externally pale fulvous; paraphyses acerose	*palearum.*

B. HAIRS OF CUP HYALINE.

	Hymenium flesh-colour	*nuda.*
	Hymenium fawn-colour	*apala.*
	Hymenium yellow	1
	Hymenium white	6
1.	Externally bluish-grey	*tricolor.*
	Externally straw-colour	*luteola.*
	Externally yellow	*solfatera.*
	Externally white	2
2.	Paraphyses filiform	3
	Paraphyses acerose	5
3.	Growing on resin	*resinaria.*
	Growing on *Luzula sylvatica*	*luzulina.*
	Growing on bark	4
4.	Margin of cup glabrous	*cupressina.*
	Margin of cup villous; sporidia minute	*subtilissima*
	Margin of cup villous; sporidia large	*calycina.*
	Margin of cup tomentose; sporidia medium size	*pygmæa.* / *comitessæ.*
5.	Growing on bark or wood	*bicolor.*
	Growing on *Phragmitis*	*acutipila.*
	Growing on *Juncus*	*diminuta.*
	Growing on oak-leaves	*patula.*
6.	Paraphyses filiform	7
	Paraphyses acerose	8
7.	Growing on pine-leaves	*acuum.*
	Growing on fern-stems	*aspidiicola.*
	Growing on wood	*nivea.*
8.	Growing on *Rhytisma*	*Rhytismæ.*
	Growing on *Myrica Gale*	*crucifera.*
	Growing on bark, wood, etc.	*virginea.*
	Growing on fern-fronds	*filicea.*
	Growing on leaves	9
9.	Hairs of cup surmounted with globose, echinulate, crystalline heads	*echinulata.*
	Hairs of cup without crystalline heads	*ciliaris.*
	c. Position doubtful	*erythrostigma.*

A. HAIRS OF CUP COLOURED.

(*a*) *Sporidia elliptic.*

(*a*) *Paraphyses filiform.*

1. *Lachnella diplocarpa.* (Currey.)

Cups stipitate, hemispherical, then nearly plane; externally vinous-brown, clothed, as well as the stem,

with dense, short, reddish-brown, septate hairs; hymenium waxy, subglaucous, greenish-olive; margin slightly inflexed, fimbriate; asci cylindraceo-clavate; sporidia 8, elliptic, guttulate, 10—12 × 3μ; paraphyses filiform, apices clavate, acuminate. (Plate VII. fig. 43.)

Peziza diplocarpa—Curr., "Linn. Trans.," xxiv. p. 153, t. 25, f. 30–33; Cooke, "Handbk.," 2047.

On the ground. November.

Cups $\frac{1}{8}$ of an inch wide; margin slightly inflexed and surrounded by a ring of hairs of a pale umber, forming a marked contrast in colour with the reddish brown outer hairs; disc waxy, somewhat glaucous, of a greenish olive colour; sporidia elliptic, with a nucleus at each extremity, usually slightly narrowed at each end, ·0003 inch (7μ) long; paraphyses filiform, terminating in spore-like bodies, the latter 2 to 4-septate, acuminate at the apex, and tapering to the junction with the filament, varying much in length, from ·0008 to ·0018 inch (20μ to 50μ). Allied to *P. rufo-olivacea*—A. and S. (Currey).

Besides the peculiar bodies Mr. Currey regarded as the paraphyses, I find in the original specimen slender filiform paraphyses. (Plate VII. fig. 48.)

Name—διπλόος, double, καρπός, fruit; having two kinds of fruit.

Joydens Wood, Dartford! (Mr. F. Currey).

(β) *Paraphyses acerose.*

2. *Lachnella cerina.* (Pers.)

Cups gregarious or crowded, shortly stipitate or subsessile, hemispherical, at length nearly plane, yellowish-olive, furfuraceo-villose; hairs brown, asperate; hymenium yellowish or dull olive-yellow; margin connivent; asci cylindraceo-clavate; sporidia 8, elliptic, 6 × 3μ; paraphyses slenderly acerose, exceeding the asci. (Plate VII. fig. 44.)

Peziza cerina—Pers., "Syn. Fung.," p. 651; Fries, "Sys. Myco.," ii. p. 92; "Eng. Flo.," v. p. 195; Holms., ii. t. 20; Nees., f. 283; "Flo. Dan.," t. 1620 (lower fig.);

Nyl., "Pez. Fenn.," p. 25; Karst., "Mon. Pez.," 184; Cooke, "Handbk.," 2036. *Dasyscypha cerina*—Fckl., "Symb. Myco.," p. 305. *Helotium cerinum*—Karst., "Myco. Fenn.," p. 156. *Lachnea cerina*—Gill., "Champ.," p. 70, c. i.

Exs.—Rabh., "Herb. Myco.," 628; Fckl., "F. Rh.," 1204; Karst., "Fung. Fenn.," 319; Phil., "Elv. Brit.," 118; Roumg., "Stirpes," 264.

On dead wood. September to June.

Cups ¼ to ½ a line broad; texture dry and firm. The stem when present is blackish, expanding into the dull olive-yellow cups. The hairs are decidedly rough, and yellowish-brown. Karsten says the hairs are articulate; I do not see them so in the specimens I examined, which were named by Persoon himself in Gay's collection in Herb. Kew.

Name—*Cera*, wax; wax-coloured.

Middletown, Montgomeryshire! Shelton, near Shrewsbury! Craven Arms, Salop! Llanyblodwell! Dinmore, Hereford! Stapleton Park, near Bristol! (Mr. C. Bucknall). Near Aberdeen! (J. W. H. Trail).

(*b*) *Sporidia fusiform.*

(*a*) *Paraphyses filiform.*

3. *Lachnella trichodea.* (Phil. and Plow.)

Cups gregarious or scattered, shortly stipitate, at first globose, then hemispherical, pale brown, clothed with rather long, fulvous, rigid hairs; hymenium pallid-white; asci clavate-cylindrical; sporidia 8, biseriate, oblong-elliptic, biguttulate, 7 × 1·5μ.

Peziza trichodea—Phil. and Plow. in "Grevillea," iii. p. 125, t. 42, f. 4.

Exs.—Phil., "Elv. Brit.," 69.

Cups 20 to 30μ broad; the asci, 30 × 5μ. The hairs are mostly without septa, and thickened at the base.

On dead pine-leaves. Autumn.

Name—θρίξ, hair, εἶδος, resemblance; like hair.

Trefriw, North Wales! Ercall Hill, Salop! Marsh Brook, Salop! General Cemetery, Shrewsbury!

4. *Lachnella Stevensoni.* (B. and Br.)

Minute, subglobose, sugar-coloured; externally granular; stem very short, incrassated upwards; asci clavate; sporidia 8, minute, subcymbæform, 8 × 2μ; paraphyses filiform, slender.

Peziza (*Mollisia*) *Stevensoni*—B. and Br., "Ann. Nat. Hist.," No. 1485; "Grevillea," iii. p. 122.

On decorticated wood.

Sporidia ·0005 inch (12μ) long. This is accompanied by creeping threads, which give off erect branches bearing obovate spores ·001 inch (25μ) long. Probably a conidiiferous state (B. and Br.).

The specimens in the Rev. M. J. Berkeley's herbarium are minutely hairy; hairs delicate, nearly colourless; cups 200 to 205μ broad; the stem nearly absent, or rather long; asci clavate; sporidia 8, oblongo-fusiform, 8 × 2μ; paraphyses filiform, slender.

Name—After the Rev. J. Stevenson.

5. *Lachnella fuscescens.* (Pers.)

Cups scattered, stipitate, at first globose, then hemispherical, tawny, clothed with bay-brown hairs; hymenium pale brown; stem very short; asci cylindraceo-clavate; sporidia linear, obtuse, 10 × 1μ; paraphyses filiform.

Peziza fuscescens—Pers., "Syn. Fung.," p. 654; "Myco. Eur.," p. 265; A. and S., "Consp.," 325; Fckl., "Symb. Myco.," p. 309; Phil., "Grevillea," iii. p. 188; B. and Br., "Ann. Nat. Hist.," No. 1622; "Grevillea," v. p. 61; Cooke, "Carp. Grevillea," p. 127, t. 40, f. 154.

Exs.—Fckl., "F. Rh.," 1168; Roumg., "Fung. Gal.," 1959.

On the under side of dead beech-leaves. Autumn.

Cups the size of *P. brunneola*, which it resembles, but the paraphyses are not acerose, as in that species.

Name—*Fuscus*, brown; becoming brown.
Builth, South Wales!

(β) *Paraphyses acerose.*

6. *Lachnella clandestina.* (Bull.)

Cups gregarious, stipitate, turbinate, then cyathiform, fawn-coloured or brown, clothed with brown septate hairs; hymenium pallid, often brownish; stem enlarged upwards from the darker, woody base; asci clavate-cylindrical; sporidia 8; fusiform, 5—8 × 1·5μ; paraphyses acerose, exceeding the asci.

Peziza clandestina—Bull., "Champ.," p. 251 (not fig.); Pers., "Obs.," i. p. 41; "Myco. Eur.," p. 262; Fries, "Sys. Myco.," ii. p. 94; "Eng. Flo.," v. p. 195; Johnst., "Flo. Ber.," p. 151; Nyl., "Pez. Fenn.," p. 26; Karst., "Pez. et Ascob.," p. 18; and "Mon. Pez.," p. 196. *Lachnum clandestinum*—Karst., "Myco. Fenn.," p. 178. *Dasyscypha clandestina*—Fckl., "Sym. Myco.," p. 305. *Lachnea clandestina*—Gill., "Champ.," p. 69.

Exs.—Desm., "Crypt. Fr.," ed. i. 1537, and ed. ii. 1037; Rabh., "Herb. Myco.," ed. ii. 21; Sommf., 100; Karst., "Fung. Fenn.," 52; Phil., "Elv. Brit.," 67; Winter, "Fungi Eur.," 2840; Roumg., "Stirpes," 330.

On dead stems of *Rubus Idæus.*

Cups ¼ to ½ a line broad, about the same high; gregarious, rather persistent; stem ligneous; cups entire, closed except when moist, but then concave; the hairs are rather long, flexuose, pointed, septate, brown.

Name—*Clandestinus*, hidden; from lying under dead leaves.

Forres, N.B.! (Rev. Dr. Keith). Hawkstone, Salop!

7. *Lachnella caulicola.* (Fries.)

Cups gregarious, stipitate, turbinato-globose, then hemispherical, yellowish-brown or pale umber, pubescent and subfarinaceous, becoming glabrous; hymenium the same colour; stem half the whole height, but variable; asci cylindraceo-clavate; sporidia 8, fusiform or oblong-

fusiform, 7 × 1μ; paraphyses acerose, slender, exceeding the asci.

Peziza caulicola—Fries, "Sys. Myco.," ii. p. 94; B. and Br., "Ann. Nat. Hist.," No. 310; Nyl., "Pez. Fenn.," p. 26; Karst., "Mon. Pez.," p. 197; Cooke, "Handbk.," No. 2036; Fckl., "Symb. Myco.," p. 308. *Helotium caulicola*—Karst., "Myco. Fenn.," p. 134. *Lachnea caulicola*—Gill., "Champ.," 69.

On dead herbaceous stems. Winter and summer.

Cups 500—700μ broad. The hairs are short, slender, flexuous, asperate, with a few granules of oxalate of lime on their apices.

Name—*Caulis*, a stem, *colo*, to inhabit.

Rudloe (Rev. M. J. Berkeley).

8. *Lachnella calyculæformis.* (Schum.)

Sub-infundibuliform, umber-brown; margin erect; externally villous, as well as the very short, rather thick stem; hymenium yellowish brown; asci cylindraceo-clavate; sporidia 8, subfusiform, 10—12 × 2μ; paraphyses acerose.

Peziza calyculæformis—Schum., "Saell.," p. 425; Fries, "Sys. Myco.," ii. p. 94; Karst., "Mon. Pez.," p. 196; B. and Br., "Ann. Nat. Hist.," Nos. 959 and 1164; Cooke, "Handbk.," No. 2037. *Lachnum calyculæformis*—Karst., "Myco. Fenn.," p. 178. *Lachnea calyculæformis*—Gill., "Champ.," p. 69.

On dead wood.

About $\frac{3}{4}$ of a line broad. "Our plant agrees with Schumacher's in habit; it is not, however, scattered in growth. It has a decidedly dark brown stem, which is smooth; and the margin is rather connivent than erect" (B. and Br., *l. c.*).

Name—*Calix*, a cup, *forma*, form; from the shape.

Mossburnford (Mr. A. Jerdon). Twycross (Rev. A. Bloxam).

Var. *latebricola.* (Rehm, "Asco.," No. 111.)

Sporidia 6—7 × 2·5μ (Rehm). I find them 9—10 × 2·5μ.

Name—*Latebricola*, one that dwells in hiding.
On twigs of *Rhododendron*.
Batheaston! (Mr. C. E. Broome).

9. *Lachnella brunneola*. (Desm.)

Cups scattered, stipitate, at first globose, then plane, marginate, pale brown, villose; hairs septate, obtuse; hymenium pallid-white; stem very short, glabrous, ivory-white; asci cylindraceo-clavate; sporidia 8, fusiform or oblong-fusiform, 6—10 × 2μ; paraphyses acerose, stoutish, exceeding the asci.

Peziza brunneola—Desm., "Ann. Sc. Nat.," 1841, ser. ii. vol. xvii. p. 96; Phil., "Grevillea," iii. 125, t. 42, fig. 2. *Lachnum brunneolum*—Karst., "Myco. Fenn.," p. 180. *Lachnea brunneola*—Gill., "Champ.," p. 67.

Exs.—Desm., "Crypt. Fr.," ed. i. 1156., ed. ii. 656; Karst., "Fung. Fenn.," 826; Phil., "Elv. Brit.," 28.

On both sides of decayed oak and Spanish chestnut leaves. Summer and autumn.

Cups 500—800μ broad; stem very short, glabrous; hairs very pale greyish-brown, septate, obtuse, with a group of granules of oxalate of lime on the summits.

Name—*Brunneus*, deep brown; brownish.

Trefriw, North Wales! Brockley Coombe, near Bristol (Mr. C. Bucknall).

Var. *fagicola*. Phil.

Cups scattered, stipitate, at first globose, then hemispherical, dark brown, clothed with rather short, stout, septate, brown, obtuse hairs; hymenium the same colour; stem slender, enlarged upwards; asci cylindraceo-clavate; sporidia 8, fusiform, acute at the ends, 7—10 × 2μ; paraphyses acerose, broad, exceeding the asci.

Peziza brunneola var. *fagicola*—Phil. in herb.

On beech-mast. May.

Cups 300—500μ broad; the hairs rather short, stout, septate, obtuse; masses of oxalate of lime at the apices; the paraphyses are broad, and are one-third longer than the asci.

Very similar to *L. brunneola;* it is a much darker colour, and the hairs are stouter and more granular within.

Name—*Fagus*, the beech, *colo*, to inhabit; from the habitat.

Brockley Coombe, near Bristol! (Mr. C. Bucknall).

10. *Lachnella pàlearum.* (Desm.)

Cups scattered, stipitate, hemispherical, then expanded, pale fulvous, tomentòse; hairs rather short, septate, fulvous, obtuse; hymenium concave, pallid-white, margin ciliated; stem rather long, enlarged upwards into the cup, base darker, firm; asci cylindraceo-clavate; sporidia 8, oblong or oblong-fusiform, 10—13 × 2μ; paraphyses acerose, exceeding the asci.

Peziza palearum—Desm., "Ann. Sc. Nat.," 1846; Karst., "Mon. Pez.," p. 195; Phil., "Grevillea," iv. p. 121; Fckl., "Symb. Myco.," p. 308. *Peziza clandestina*, β. *patens*—Fries, "Sys. Myco.," ii. p. 94 (?); ββ. *patula*—A. and S., p. 236 (?). *Peziza Schweinitzii*—Auersw. in Rabh., "Fung. Eur.," nov. ed. No. 1118. *Lachnea patens*—Karst., "Symb.," p. 250. *Lachnum patens*—Karst., "Fung. Fenn.," p. 179; Mich., vii. p. 330. *Lachnea palearum*—Gill., "Champ.," p. 67.

Exs.—Desm., "Crypt. Fr.," ed. i. 1417, ed. ii. 917; Rabh., "Fung. Eur.," nov. ed. 1118; Phil., "Elv. Brit.," 68; Rhem, "Asco.," 156; Thum., "Fung. Aus.," 828; and "Mycoth. Univ.," 121; Fckl., "F. Rh.," 1181; Roumg., "Fung. Gal.," 540.

On decayed culms of *Psamma arenaria*, and other grasses.

Cups 300—400μ broad, nearly the same high. The short, septate hairs cover the whole of the exterior, and often have a few granules of oxalate of lime on their apices. Asci 50μ long, and 5μ broad.

Name—*Palea*, chaff; growing on chaff.

North Wootton, Norfolk (Mr. C. B. Plowright). Mangotsfield, near Bristol (Mr. C. Bucknall); Grantown, N.B.! (Rev. Dr. Keith). Water Orton! (Mr. W. B. Grove).

B. HAIRS OF CUP HYALINE.

(*a*) *Sporidia globose.*

(*a*) *Paraphyses filiform.*

11. *Lachnella Cupressi.* (Batsch.)

Cups gregarious, sessile or with a short stem, at first pyriform, then almost hemispherical, at length nearly plane, between fleshy and waxy; margin entire, rather obtuse, glabrous; base and stem villose white; hymenium orange-yellow; asci cylindrical; sporidia 8, globose, smooth, 9—10μ; paraphyses slender, apices slightly enlarged. (Plate VIII. fig. 45.)

Peziza Cupressi—Batsch, "El.," p. 119. *Peziza cupressina*—Pers., "Syn. Fung.," p. 667; Fries, "Sys. Myco.," ii. p. 135; Karst., "Mon. Pez.," p. 122; Gonn. and Rabh., "Myco. Eur.," iii. p. 9, t. 5, f. 9; Karst., "Myco. Fenn.," p. 63. *Pithya cupressina*—Fckl., "Symb. Myco.," p. 317. *Phialea cupressina*—Gill., "Champ.," 107.

Exs.—Desm., "Crypt. Fr.," ed. ii. No. 19; Karst., "Fung. Fenn.," 149; Rabh., "Fung. Eur.," 122; Winter, "Fungi Eur.," 2966.

On leaves of *Juniperis Sabina.*

Cups about 1 line broad.

Name—*Cupressus,* the cypress; from its habitat when found by Batsch.

Brandon, Norfolk! (Mr. C. B. Plowright).

(*b*) *Sporidia oblong-elliptic.*

(*a*) *Paraphyses filiform.*

12. *Lachnella tricolor.* (Sow.)

Cups gregarious, stipitate, hemispherical, waxy; externally pale blue or bluish-grey, villose with slender, septate, nearly colourless hairs; stem very short, rather stout, nearly white; hymenium yellowish; asci clavate-cylindrical; sporidia 8, narrowly elliptic, smooth, biseriate, 13—15 × 2½; paraphyses filiform, slender.

Peziza tricolor—Sow. in "Eng. Fung.," t. 369, f. 6;

Fries, "Sys. Myco.," ii. p. 134; "Eng. Flo.," v. p. 204; Berk., "Outl.," p. 368; Cooke, "Handbk.," No 2042. *Peziza Godroniana*—Mont., "Syll.," p. 185.

Exs.—Moug. and Nest., No. 1189.

On bark and wood.

Cups about ½ a line broad.

This is a very rare species, easily recognized by its bluish-grey exterior.

Name—*Tricolor*, three-coloured; from the disc, cup, and stem being different colours.

Ripon (Mr. W. Brunton).

13. *Lachnella calycina.* (Schum.)

Cups gregarious or scattered, often cæspitose, stipitate, at first hemispherical, then expanded, waxy; externally white, villose; hymenium orange-yellow; margin entire; stem short, rather stout, enlarged upwards into the base of the cup; asci cylindrical or subclavate; sporidia 8, oblong-elliptic or fusiform, smooth, 18—22 × 7μ; paraphyses filiform, scarcely thickened upwards.

Peziza calycina—Schum., "Saell.," p. 424; Fries, "Sys. Myco.," ii. p. 91 (in part); "Eng. Flo.," v. 195 (in part); Cooke, "Handbk.," No. 2034. *Peziza laricis*—Rehm, "Grevillea," iv. p. 169. *Lachnea calycina*—Gill., "Champ.," p. 71. *Peziza Willkommii*—R. Hartig., "Krank. Waldb."

Exs.—Cooke, "Fung. Brit.," i. 474, ii. 369; Rehm, "Asco.," 62; Fckl., "F. Rh.," 1206; Thum., "Herb Myco.," 191; Phil., "Elv. Brit.," No. 22; Winter, "Fungi Eur.," 1422*b*; Cooke, "Fung. Brit.," ed. ii. 369, 370.

On bark of larch and Scotch firs.

Dr. Cooke has pointed out the fact that two different species have been included by authors under this name, the one having much smaller sporidia than the other. The one with the smaller sporidia he has named *P. subtilissima* (Cooke); the other he regards as Schumacher's species. The synonymy is rendered somewhat uncertain by this fact, and only such references have been given above as have been verified.

R

Cups ½ to 1 line broad.

This excessively common but very pretty British species can be distinguished from *L. subtilissima* (Cooke) chiefly by the size of the sporidia. The cups when young are nearly globose, the stem barely visible or quite absent, the mouth is only a minute pore; when old the cup expands, exposing the yellow disc, but the margin is always entire and upright—never recurved.

Name—*Calycinus*, resembling a calyx.

Var. *Trevelyani*. Cooke in "Grevillea," iii. p. 121.

Distinguished by the larger sporidia (30—35μ long), and by their tendency to become pseudo-uniseptate.

Scotland (Dr. Stirton). Argyleshire (Mr. B. Acton). Pontesford, Salop!

14. *Lachnella resinaria*. (Cooke and Phil.)

Cups gregarious, stipitate, at first turbinate, then somewhat expanded, waxy; externally white, and clothed, as well as the short stem, with short villous down; hymenium pale orange; margin inflexed; asci cylindrical; sporidia 8, elliptic, hyaline, 5 × 2·5μ; paraphyses filiform.

Peziza resinaria—Cooke and Phil., "Grevillea," iii. p. 185.

Exs.—Phil., "Elv. Brit.," 66.

On resin of spruce fir. Spring.

Cups ½ a line broad; the asci are 30—35 × 3—4μ. This species is remarkable amongst the group to which it belongs for the minuteness of the sporidia.

Name—*Resina*, resin; growing on resin.

Trefriw, North Wales!

(*c*) *Sporidia fusiform.*

(*a*) *Paraphyses filiform.*

15. *Lachnella pygmæa*. (Fries.)

Cups stipitate, cæspitose or single, concave, at length plane, pale orange, tomentose, as is the thickened, branch-

ing stem; hymenium bright orange; asci cylindraceo-clavate; sporidia 8, fusiform, 11 × 2·5μ; paraphyses filiform.

Peziza pygmæa—Fries, "Sys. Myco.," ii. p. 79; B. and Br., "Ann. Nat. Hist.," 1066, t. 5, f. 18, No. 1160*, t. 4, f. 22; "Linn. Trans.," xxv. p. 432, t. 55, figs. 7–13; Cooke, "Handbk.," 2014. *Helotium pygmæum*—Karst., "Symb. Myco.," p. 214; "Myco. Fenn.," p. 153. *Lachnea pygmæa*—Gill., "Champ.," p. 71.

Exs.—Rabh., "Fung. Eur.," nov. ed. No. 1120.

On dead twigs of *Ulex*, buried in the sand. November.

Cups 3 to 6 lines broad. The stem varies in length according to the depth at which the twig is buried. Sporidia uniseriate, linear-oblong, ·0005 to ·0006 inch long; about a ¼ of an inch high when full grown, stipitate, the stem branching out or dividing into several heads, which form cups. The cups are often proliferous, producing smaller cups on their surface, of a bright apricot colour, but whitish towards the margin (B. and Br.).

The tomentum disappears when dry.

Name—*Pygmæus*, dwarfish; from the size.

Joyden's Wood, Dartford (Mr. C. E. Broome). Ascot (Rev. G. Sawyer). Blackdown Hills, near Taunton, and Wimbledon (Mr. C. E. Broome).

16. *Lachnella comitessæ*. (Cooke.)

Cups cæspitose, or single and gregarious, stipitate, at first clavate, then expanded and cupulate, pale yellow, tomentose; hymenium bright golden-yellow; common stem branching below; asci cylindraceo-clavate; sporidia 8, fusiform, straight or curved, 6—7·5 × 2·5μ; paraphyses filiform.

Peziza comitessæ—Cooke, "Grevillea," iv. p. 111.

Exs.—Cooke, "Fung. Brit.," ii. m. 371.

On fallen tree. Autumn.

Cups ½ to 1½ lines broad; stems united at the base, rather stout, expanding upwards into the cup, variable in length; flesh soft.

The branching stem resembles that of *Peziza pygmæa*,

to which this species is allied; the tufts contain from two to four cups, proceeding from a common stem, or sometimes single. It is an elegant species dedicated to the Countess of Kinnoull, on whose estate it was discovered (Dr. Cooke, *l. c.*).

Name—After the Countess of Kinnoull.

Dupplin Castle, Perth (Dr. M. C. Cooke).

17. *Lachnella subtilissima.* (Cooke.)

Cups gregarious or scattered, stipitate, at first globose, then hemispherical, at length expanded, waxy; externally white, villose; hymenium orange-yellow; margin entire; stem short, variable in size, enlarging upwards into the cup; asci cylindrical or subclavate; sporidia 8, fusiform, uniseriate, 10—12 × 2μ.

Peziza subtilissima—Cooke in "Grevillea," iii. p. 121, fig. 167. *Peziza calycina*—Nyl., "Pez. Fenn.," p. 24 (in part); Karst., "Pez. et Ascob.," p. 16; "Mon. Pez.," 182. *Helotium calycinum*—Karst., "Myco. Fenn.," p. 154.

Exs.—Fries, "Scl. Suec.," 360; Phil., "Elv. Brit.," No. 114.

On bark of firs.

This was long confounded with *P. calycina* (Schum.), till distinguished by Dr. Cooke (*vide l. c.*).

Name—*Subtilis*, delicate; very delicate.

Scotland (Dr. Greville). Shrewsbury!

18. *Lachnella luzulina.* Phil.

Cups gregarious or scattered, shortly stipitate, at first turbinate, then hemispherical, at length nearly plane; externally white, pubescent; hymenium pale yellow; margin entire; asci clavate; sporidia 8, fusiform, straight or slightly curved, biseriate, 13 × 3μ; paraphyses filiform.

Peziza luzulina—Phil. in "Grevillea," iv. p. 121.

Exs.—Phil., "Elv. Brit.," 71.

On dead *Luzula sylvatica*, at the base, between the leaves. Winter.

Name—*Luzula*, a genus of *Juncaceæ*; growing on *Luzula*.

Conway, North Wales!

19. *Lachnella nivea*. (Hedw.)

Cups gregarious, stipitate, turbinate, waxy; externally white, villose-tomentose; hairs slender, hyaline, septate, obtuse; asci cylindrical; sporidia 8, fusiform or oblong-fusiform, biseriate, 8—10 × 2μ; paraphyses filiform.

Peziza nivea—Fries, "Sys. Myco.," ii. p. 90; "Eng. Flo.," v. p. 195; Cooke, "Handbk.," 2033 (in part). *Lachnea nivea*—Gill., "Champ.," p. 68, c. i. *Octospora nivea*—Hedw., t. 8, f. B.

Exs.—Cooke, "Fung. Brit.," No. 559, and ed. ii. No. 546.

On rotten wood. Autumn.

Cups ¼ to ½ a line broad. Externally like *P. virginea*, but distinguished by its filiform asci.

Name—*Niveus*, snowy; snow-white.

Attingham Park, near Shrewsbury! Forden, Montgomeryshire! (Rev. J. E. Vize).

20. *Lachnella aspidiicola*. (B. and Br.)

White, rather buff when dry; stem very short; cups concave, subhemispherical; externally furfuraceous floccose; asci very short and slender; sporidia oblong, subclavate, 5—8 × 1—2μ; paraphyses filiform.

Peziza aspidiicola—B. and Br., "Ann. Nat. Hist.," No. 771; Berk., "Outl.," p. 369; Cooke, "Handbk.," 2058. *Mollisi aspidiicola*—Gill., "Champ.," p. 129.

Exs.—Cooke, "Fung. Brit.," 565, and ed. ii. No. 547; Phil., "Elv. Brit.," 26; Kunze, "Fung. Sel.," 596; Rehm, "Asco.," 560; Rabh., "Fung. Eur.," 1516.

On dead stems of *Aspidium Filix-mas*. November.

Very minute, gregarious, white, rather buff when dry; stem extremely short, gradually passing into the subhemispherical cup, which is clothed externally with minute pellucid scales, mixed with a few obscure hyaline

flocci; asci very short and slender; sporidia ·0002 of an inch long, oblong, subclavate.

Resembling in its investing coat *P. Berkeleii*, but differing in colour, in the distinct stem, more open disc, and in the more minute sporidia. *P. aspidii*, Libert, is a more minute species, of a purer, more persistent white, and with a more tomentose coat (B. and Br., *l. c.*).

Name—*Aspidium*, an old genus of ferns, *colo*, to inhabit; on ferns.

Orton, Leicestershire (Rev. A. Bloxam). Shrewsbury!

21. *Lachnella acuum.* (A. and S.)

Cups gregarious or scattered, stipitate, at first globose, then hemispherical, at length nearly plane; externally white or roseate-white, villose; hymenium clavate; sporidia 8, fusiform or oblong-fusiform, uniseriate, $5 \times 1{\cdot}5\mu$; paraphyses filiform.

Peziza acuum—A. and S., p. 330; Fries, "Sys. Myco.," ii. p. 95; Nyl., "Pez. Fenn.," p. 27; Berk., "Outl.," p. 368; Karst., "Mon. Pez.," 181. *Helotium acuum*—Karst., "Myco. Fenn.," p. 147; Cooke, "Handbk.," 2137; Gill., "Champ.," p. 161.

Exs.—Desm., i. 1536, ii. 1036; Karst., "Fung. Fenn.," 322; Fckl., "F. Rh.," 1153; Phil., "Elv. Brit.," 163.

On decaying pine-leaves, in damp places.

Cups about 100 to 200μ broad; asci 30μ long, 5μ wide. The paraphyses are not easily seen, being diffluent in water.

Name—*Acus*, a needle; a pine-leaf being so called, on which it grows.

Rose Hill, near Shrewsbury! Forres! N.B. (Rev. Dr. Keith). Aberdeen! (J. W. H. Trail).

22. *Lachnella solfatera.* (Cooke and Ellis.)

Cups scattered, hemispherical, very shortly stipitate, citrine-yellow, tomentose; hairs short, minutely asperate, granulato-capitate; asci subclavate; sporidia 8, narrowly fusiform, $8 \times 1\mu$; paraphyses filiform, slender.

Peziza solfatera—Cooke and Ellis in "Grevillea," vii. p. 7. *Peziza pulverulenta*—Lib. Auerswald in herb.

On dead pine leaves.

Cups ¼ of a line broad.

A minute and delicate species, nearly allied to *L. pulverulenta* (Lib.), of which some may consider it only a variety. The whole plant when fresh is a clear citrine-yellow, of which colour the granules on the delicate, non-septate hairs, and the globose masses at the tips of the hairs, partake. The asci are about 25μ long, and about 4μ broad.

Name—Italian *solfo*, sulphur, *terra*, earth; from the colour.

Clifton, near Bristol! (Mr. Cedric Bucknall). Carlisle! (Dr. Carlyle).

(β) *Paraphyses acerose.*

23. *Lachnella nuda.* Phil.

Cups gregarious, plane or convex, stipitate, waxy, flesh-colour, glabrous; hymenium same colour, undulated; stem long, flexuose, expanding into the cup; asci cylindraceo-clavate; sporidia 8, fusiform or oblong-elliptic, hyaline, 5—10 × 2—3μ; paraphyses acerose, granular within, exceeding the asci.

Peziza nuda—Phil., "Scott. Nat.," vi. 124.

On the ground amongst moss, in a fir wood.

Cups 1 line broad, and 2 lines high.

A large and *Helotium*-like species, having acerose paraphyses, which have never been observed before in a perfectly glabrous species, the presence of which fully justifies placing here. The asci are 500μ long, and 4μ broad; the paraphyses are 70μ long.

Name—*Nudus*, naked; nearly devoid of hairs.

Forres, N.B.! (Rev. Dr. Keith).

24. *Lachnella luteola.* (Curr.)

Cups cæspitose, cyathiform, ultimately expanded and convex, stipitate, pale straw-colour; the edge covered with very minute, parallel white hairs, giving a some-

what ribbed or channelled appearance; hymenium the same colour; asci cylindrical; sporidia 8, fusiform, straight or slightly curved, colourless, 10 × 2μ; paraphyses acerose, sometimes septate, exceeding the asci.

Helotium luteolum—Curr. in "Linn. Trans.," xxiv. p. 153, t. 25, f. 11, 12, 18; Cooke, "Handbk.," 2138.

On dead stick of gorse, the end of which was sunk in the mud in a pool of water. May.

Cup ½ a line broad, ¼ of a line high.

Remarkable in its densely cæspitose and branching habit, and the paraphyses are very peculiar. Its aquatic habit is also an unusual character (Currey).

Having examined the original specimen, I have no hesitation in placing it here. The presence of hairs and acerose paraphyses forbid it being an *Helotium*.

Name—*Luteus*, yellow; yellowish.

Paul's Cray Common! (Mr. F. Currey).

25. *Lachnella virginea*. (Batsch.)

Cups gregarious, at first globose, then hemispherical, stipitate; externally white, beset with crowded patent hairs; hymenium white; stem short, rather stout; asci clavate-cylindrical; sporidia 8, oblong-fusiform, .5—10 × 1—2μ; paraphyses acerose, exceeding the asci.

Peziza virginea—Batsch. in Pers., "Obs.," i. p. 28; and "Myco. Eur.," i. p. 262; Fries, "Sys. Myco.," ii. p. 90; Mich., t. 86, f 15; Bull., t. 376, f. 3; Holms., ii. t. 14; Sow., t. 65; "Eng. Flo.," v. p. 194; Karst., "Pez. et Ascob.," 15; and "Mon. Pez.," 192; Cooke, "Handbk.," 2032. *Dasyscypha virginea*—Fckl., "Symb. Myco.," p. 305. *Peziza parvula*—"Flo. Dan.," t. 1016, f. 4. *Lachnum virgineum*—Karst., "Myco. Fenn.," 169. *Lachnea virginea*—Gill., "Champ.," p. 68, c. i.

Exs.—Fckl., 1208; Cooke, "Fung. Brit.," 560, and ed. ii. No. 545; Phil., "Elv. Brit.," 21; Rehm, "Asco.," 14; Winter, "Fungi Eur.," 2743.

On wood, bark, branches, etc.

Cups about ¼ of a line broad. The acerose paraphyses at once distinguish this from *L. nivea*.

Name—*Verginеus*, virgin-like; pure white.

Forres, N.B. (Rev. Dr. Keith). Overley Hill, Salop! Brynkinalt, Denbighshire!

26. *Lachnella bicolor.* (Bull.)

Cups gregarious or cæspitose, very shortly stipitate, at first globose, then expanded, white, tomentose; hairs long, asperate; hymenium orange-yellow; asci cylindraceo-clavate; sporidia 8, linear-fusiform, 8—10 × 1—2μ; paraphyses acerose. (Plate VIII. fig. 46.)

Peziza bicolor—Bull., "Champ.," t. 410, f. 3; Sow., t. 17; Fries, "Sys. Myco.," ii. 92; "Eng. Flo.," v. p. 195; Karst., "Pez. et Ascob.," p. 16; and "Mon. Pez.," 194; "Flo. Dan.," t. 779, f. 2. *Peziza calycina*—Nyl., "Pez. Fenn.," 24 (in part). *Dasyscypha bicolor*—Fckl., "Symb. Myco.," 305; Cooke, "Handbk.," 2035. *Lachnum bicolor*—Karst., "Myco. Fenn.," p. 172. *Lachnea bicolor*—Gill., "Champ.," p. 70, c. i.

Exs.—Berk., 155; Fckl., 1205; Desm., "Crypt. Fr.," ed. i. 1057; Karst., "Fung. Fenn.," 3; Cooke, "Fung. Brit.," 568, ed. ii. 363; Sommf., 99; Phil., "Elv. Brit.," 23; Rehm, "Asco.," 302; Roumg., "Fung. Gal.," 830.

On dead branches of oak.

Cups ¼ to ½ a line broad; stem short or nearly absent; asci 60μ long, 6μ broad; hairs long, flexuose, rough.

Name—*Bis*, double, *color*, colour.

Pulborough (Mr. C. H. Spencer Perceval). Ringstead (Mr. C. B. Plowright). Leigh Woods, near Bristol! (Mr. C. Bucknall). Scarborough! (Mr. Massee). Shifnal, Salop!

27. *Lachnella echinulata.* (Awd.)

Cups minute, epiphyllous or hypophyllous, gregarious, at first globose, at length flattened and very shortly stipitate, white; externally villous; the hairs, each of which bears a globose, echinulate head at the apex, forming a very beautiful radiate margin to the disc, which, when damp, is obscurely marked with a small eye-like spot in the middle; mature asci clavate, shortly

stipitate, 8-spored, nearly 60μ long, 6μ broad; sporidia in two rows, fusiform, acute at each end, straight or curved, or sigmoid.

Peziza echinulata—Awd., "Hedwig.," 1868, p. 136. *Peziza patula*—Rabh., "Fung. Eur.," 1009, nec 425, quæ vera. *P. patula*—P. sec et Desm., "Ann. Sc. Nat.," 2, xv. p. 132. *P. ciliaris, β. globulifera*—P. sec. Desm., l. l. p. 130.

Name—*Echinatus*, set with prickles; from the angular knobs of oxalate of lime on the hairs.

28. *Lachnella Rhytismæ.* Phil.

Cups gregarious, stipitate, at first globose, then hemispherical, white; clothed with short villose hairs, bearing on their summits globular crystalline beads; hymenium white; stem rather long, villose to the base; asci cylindrical or cylindraceo-clavate; sporidia 8, oblong-fusiform, 3—5 × 1μ; paraphyses acerose, exceeding the asci.

Peziza Rhytismæ—Phil. in "Grevillea," viii. p. 101; "Scott. Nat.," vi. 124.

On dead leaves of *Acer* on *Rhytisma acerinum.*

Cups 300μ broad; stem about 400μ long. The hairs of the cup are short, non-septate, colourless, and the globular crystalline heads are perfectly even, not angular, as in most other species, though slightly rough.

Name—*Rhytisma*, the genus of fungi on which it grows.

Forres, N.B.! (Rev. Dr. Keith).

29. *Lachnella crucifera.* Phil.

Cups gregarious, stipitate, white, at first globose, then expanded; clothed with short, septate, colourless hairs, the summits of which are subclavate, and each crowned with a cruciform crystal; stem rather long, villose to the base; asci cylindraceo-clavate; sporidia 8, cylindrical or narrowly fusiform, straight, 6—8 × 1μ; paraphyses acerose, exceeding the asci.

Peziza crucifera—Phil. in *Gard. Chron.*, 1878, p. 397, fig. 71.

On dead twigs of *Myrica gale*. Spring and autumn.

Cups about 300μ broad, and about 500μ high.

This differs from *L. echinulata* (Awd.) in having a longer stipes, being persistently white when dry, and having what appear to be cruciform bodies on the summits of the hairs. These bodies prove to be crystals of oxalate of lime (octahedra).

Name—*Crux*, cross, *fero*, to bear; from the hairs appearing to have crosses at their summits.

Capel Curig, North Wales! North Wootton, Norfolk! (Mr. C. B. Plowright). Forres, N.B.! (Rev. Dr. Keith). Cockshutt, Salop!

30. *Lachnella patula*. (Pers.)

Cups gregarious, stipitate, at first globose, then hemispherical, white, villose; the hairs long, slender, colourless, non-septate, acute, spreading; hymenium lutescent; asci cylindraceo-clavate; sporidia 8, fusiform or oblong-elliptic, 8—12 × 1·5μ; paraphyses acerose, exceeding the asci.

Peziza patula—Pers., "Obs.," i. p. 42; "Syn. Fung.," p. 654; "Myco. Eur.," p. 262; A. and S., p. 324; Nees, "Sys.," f. 284; Fries, "Sys. Myco.," ii. 91. *Hyalopeziza patula*—Fckl., "Symb. Myco.," p. 298. *Lachnea patula*—Gill., "Champ.," p. 72.

Exs.—Fckl., "F. Rh.," 1189; Rehm, "Asco.," 258 and 259; Libert, "Crypt. Ard.," 225.

On oak-leaves decaying in damp places.

Cups 300μ to 500μ broad; stem very short, hairs much spreading, flexuose, and somewhat entangled. The hairs are longer and slenderer than in *L. ciliaris*. This is an exceedingly minute species.

Name—*Patulus*, spreading; from the long, spreading hairs.

Wellington, Salop!

31. *Lachnella ciliaris*. (Schum.)

Cups minute, stipitate, at first globose, then cyathiform, waxy, snow-white, externally beset with long, somewhat spreading, scattered, septate, white hairs;

hymenium white; asci clavate; sporidia 8, fusiform, straight or curved, hyaline, obliquely uniseriate, 18 × 2μ; paraphyses acerose, slightly exceeding the asci.

Peziza ciliaris—Schrad., "Bot. Jour.," 1799, ii. p. 2; Fries, "Sys. Myco.," ii. p. 89; Cooke, "Handbk.," No. 2031. *Hyalopeziza ciliaris*—Fckl., "Symb. Myco.," p. 298. *Lachnea ciliaris*—Gill., "Champ.," p. 68, c. i.

Exs.—Fckl., "F. Rh.," 1189; Cooke, "Fung. Brit.," 573; ed. ii. 373.

On dead oak-leaves. Autumn.

Cups about 300μ broad. Very similar to *L. patula*.

Name—*Cilium*, the eyelash; from the fringed margin.

Near Shrewsbury!

32. *Lachnella acutipila*. (Karst.)

Cups gregarious or scattered, stipitate, at first globose, at length somewhat plane or a little convex, when dry concave; margin piloso-fimbriate; stem very short; asci cylindraceo-clavate; sporidia 8, slenderly fusiform, commonly straight, with many guttulæ, 8—16 × 1—1·5μ; paraphyses acerose.

Peziza acutipila—Karst., "Mon. Pez.," p. 195. *Lachnum acutipilum*—Karst., "Myco. Fenn.," p. 173.

On *Pyragmites communis*. April to October.

Cups about 800μ broad; hairs of the cup septate, cuspidate, 4μ thick; disc sometimes lutescent. Resembling the preceding.

Var. *lætior*. (Karst., *l. c.*, p. 174.)

Cups sessile or subsessile, a little larger, in a dry state contracted and difformed; disc dilutely yellow, when dry yellow; sporidia somewhat larger.

The hairs in my specimens are rough, with a few amorphous crystals of oxalate of lime at the summit.

On dead stems of *Rubus idæus*. Summer and autumn.

Name *Acutus*, sharp, *pilus*, hair; from the acute hairs with which it is clothed.

Forres, N.B.! (Rev. Dr. Keith). Church Stretton, Salop!

(*d*) *Sporidia elongate-fusiform or filiform.*

(*a*) *Paraphyses acerose.*

33. *Lachnella diminuta.* (Rob.)

Cups scattered or crowded, shortly stipitate, at first globose, then expanded and hemispherical, whitish, tomentose; hymenium concave, yellowish or orange; asci clavate-cylindrical; sporidia 8, oblong-elliptic, 12 × 2μ; paraphyses filiform.

Peziza diminuta—Rob. in Desm. "Ann. Sc. Nat.," 1847, viii. p. 185; "Grevillea," iii. p. 184, t. 41, f. 183. *Lachnea diminuta*—Gill., "Champ.," p. 71.

Exs.—Desm., 1538 (in part); Cooke, "Fung. Brit.," 287.

On dry culms of *Juncus*.

Cups about 500μ broad; stem very short; hairs of the exterior long and slender.

In Desmaziere's published specimens *L. apala* (B. and Br.) appears in some copies, and this species in others, but the sporidia are so different that no mistake can be made between them when examined.

Name—*Diminutus*, diminished; from its small size.

Dr. M. C. Cooke, without locality.

34. *Lachnella apala.* (B. and Br.)

Cups scattered or crowded, stipitate or sessile, at first, with the stem, obconical, then expanded, at length plane, furfuraceo-villose, fawn-coloured; hymenium plane, darker; asci clavate-cylindrical; sporidia 8, fuso-filiform, straight, 15—30 × 3μ; paraphyses acerose, filled with granules, exceeding the asci.

Peziza apala—B. and Br., "Ann. Nat. Hist., No. 561; Cooke, "Handbk.," No. 2060.

Exs.—Rabh., "Fung. Eur.," No. 25; Cooke, "Fung. Brit.," ed. ii. No. 374; Phil., "Elv. Brit.," 27; Winter "Fungi Eur.," 2517.

On dead rushes. Spring and summer.

Cups about 500μ broad.

Hairs rather stout, asperate, non-septate, colourless,

obtuse; the paraphyses are broad, and sometimes septate, filled with granular protoplasm.

Name—ἁπαλός, soft, tender.

Batheaston, near Bath (Mr. C. E. Broome). Mangotsfield, near Bristol! (Mr. C. Bucknall). Grantown, N.B.! (Rev. Dr. Keith). Haughmond Hill, Salop! Bomere, Salop!

35. *Lachnella filicea.* (Cooke and Phil.)

Cups gregarious, stipitate, at first globose, then hemispherical, white, tomentose; hairs short, septate, colourless; hymenium white; asci cylindraceo-clavate; sporidia 8, fusiform, acute at the ends, 3-nucleate or pseudo-septate, biseriate, 15—20 × 2—3μ; paraphyses acerose, exceeding the asci.

Peziza filicea—Cooke and Phil. in Herb. Kew.

On fern-leaves.

Cups 100 to 200μ broad; stem short, equalling the height of cup. The hairs of the cup are often obtuse, or pyriform, at the apices, with clusters of amorphous crystals of oxalate of lime, and deciduous. The asci are very large for such a small species.

Name—*Filices*, the fern tribe; growing on ferns.

Duneden, N.B.! in Herb. Kew; Chedder! (Mr. C. Bucknall).

C. POSITION DOUBTFUL.

36. *Lachnella erythrostigma.* (B. and Br.)

Minute, stipitate, punctiform, pale red; hymenium at length convex; asci clavate; sporidia uniseriate, elliptic or subglobose.

Peziza erythrostigma—B. and Br., "Ann. Nat. Hist.," 1168, t. 4, f. 31; Cooke, "Handbk.," 2118.

Parasitic on *Sphæria phæostroma*.

The stem is mostly curved, distinctly cellular; asci clavate; sporidia minute, subglobose. Very minute, but a pretty object under the microscope (B. and Br.). "Minutely woolly with delicate hairs" (Cooke in litt.).

Batheaston (?) (Mr. C. E. Broome).

Section II.—Sessile.

Subgenus III.—Lachnella. Fries (in part).

Cups sessile, pilose or villose, for the most part firm and dry, at first closed and globose, then more or less expanded and hemispherical. (Plate VIII. figs. 47, 48.)

Name—λάχνη, down.

Arrangement of the Species.

A. Hairs of cup coloured.
  (*a*) Sporidia elliptic or oblong.
    (*α*) Paraphyses filiform or absent .. species 37, 38
  (*b*) Sporidia fusiform or clavate.
    (*α*) Paraphyses filiform or absent „ 39–49
    (*β*) Paraphyses acerose .. .. „ 50–52
B. Hairs of cup hyaline.
  (*a*) Sporidia elliptic, oblong, or subcymbiform.
    (*α*) Paraphyses filiform or absent.
      (i.) Cups coloured .. .. „ 53–54
      (ii.) Cups white or greyish-white „ 55–59
  (*b*) Sporidia fusiform or clavate.
    (*α*) Paraphyses filiform or clavate.
      (i.) Cups coloured .. .. „ 60–62
      (ii.) Cups white or greyish-white „ 63–66
    (*β*) Paraphyses acerose.
      (i.) Cups coloured .. .. „ 67
  (*c*) Sporidia cylindrical .. .. „ 68
C. Position doubtful .. .. „ 69–71

Key to the Species.

A. HAIRS OF THE CUP COLOURED.

Hymenium brownish-olive; hairs long .. .. *prasina.*
Hymenium purplish-brown; hairs very short .. *Schumacheri.*
Hymenium pale rufous .. .. *Stockii.*
Hymenium brown 1
Hymenium yellow 4
Hymenium cinereous .. .. *escharodes.*
Hymenium white or pallid 5
1. Growing on herbaceous stems 2
1. Growing on wood or bark 3
2. Hymenium pale spadicious; exterior spadicious, densely tomentose .. .. *spadicea.*
2. Hymenium rufous, exterior refescent, floccoso-tomentose .. .. *corticalis.*
2. Hymenium smoky-brown; exterior brown; sporidia becoming 1-septate .. .. *canescens.*
2. Hymenium brown; exterior furfuraceo-tomentose .. *grisella.*

3.	Growing on herbaceous stems; externally clothed with strigose hairs	*nidulus.*
	Growing on fern-stems; exterior olive-brown	*Pteridis.*
	Growing on rotten wood, citron-colour	*citricolor.*
4.	Growing on leaves; exterior fulvo-rufous	*dumorum.*
	Growing on herbaceous stems; exterior yellow or whitish	*sulphurea.*
	Growing on dead wood or bark	6
5.	Externally white; margin granulated	*papillaris.*
	Externally ferruginous; disc pallid	*barbata.*
	Externally nearly straw-colour	*varicolor.*

B. HAIRS OF CUP HYALINE.

	Hymenium watery-umber	*dematiicola.*
	Hymenium black	*melazantha.*
	Hymenium pale red	*micacea.*
	Hymenium tawny	*Berkeleii.*
	Hymenium flesh-colour; externally white or brick-red	*albo-testacea.*
	Hymenium white or very pale yellow: on *Humulus*	*Tami.*
	Hymenium yellowish; externally white: on *Sphæria*	*episphæria.*
	Hymenium white	1
1.	Growing on *Rubus*	*candidata.*
	Growing on wood	2
	Growing on leaves	4
	Growing on rushes	*fugiens.*
	Growing inside husks of chestnut	*aranea.*
2.	Exterior white; margin ciliated; hairs long	3
	Exterior white; hairs short and inconspicuous	*hyalina.*
	Exterior whitish or yellowish, rough with papillæ	*scrupulosa.*
3.	Marginal hairs twisted spirally	*sporotricha.*
	Marginal hairs spreading	*leuconica.*
4.	Exterior greyish-white: on leaves of *Rubus*	*œdema.*
	Exterior white, when dry yellowish: on leaves of *Betulus*	*araneo-cincta.*
	Exterior white, nearly naked: on leaves of *Epilobium*	*punctoidea.*

A. HAIRS OF CUP COLOURED.

(*a*) *Sporidia elliptic or oblong.*

(*a*) *Paraphyses filiform.*

37. *Lachnella Pteridis.* (A. and S.)

Cups scattered or gregarious, sessile, small, at first globose, then hemispherical, waxy soft; externally dark olive-brown, pulverulose from the adpressed hairs; margin crenate-fimbriate; flesh dirty yellow; asci clavate or elongate-subfusiform; sporidia 8, oblong or oblong-

fusiform, 5—9 × 2—3μ; paraphyses filiform. (Plate VIII. fig. 47.)

Peziza Pteridis—A. and S., "Consp.," p. 338, t. 12, fig. 7; Pers., "Myco. Eur.," p. 300; Nyl., "Pez. Fenn.," p. 59. *Trichopeziza pulveracea*—Fckl., "Symb. Myco.," p. 297; Sacc., "Myco. Ven. Sp.," p. 163. *Mollisia Pteridis*—Gill., "Champ.," p. 121.

Exs.—Desm., "Crypt. Fr.," ed. i. 1419, ed. ii. 919; Rabh., "Fung. Eur.," 424; Cooke, "Fung. Brit.," i. 657, ii. 387; Phil., "Elv. Brit.," 33; Rehm, "Asco.," 411; Rabh., "Fung. Eur.," 1817.

On dead stems of *Pteris aquilina*.

Cups 200 to 500μ broad, nearly globose, roughish and blackish brown to the naked eye.

Name—*Pteris*, a genus of ferns.

Castle Rising, Norfolk! (Mr. C. B. Plowright). Shrewsbury!

38. *Lachnella papillaris*. (Bull.)

Cups gregarious, sessile, hemispherical, then expanded, externally between villose and hairy, entirely milk-white; margin granulated; asci cylindraceo-clavate; sporidia 8, oblong or oblong-fusiform, 10—14 × 3μ.

Peziza papillaris—Bull., t. 467, f. 1; Sow., t. 177; Fries, "Sys. Myco.," ii. p. 102; "Eng. Flo.," p. 197; Cooke, "Handbk.," 2051; Karst., "Pez. et Ascob.," p. 21; and "Mon. Pez.," p. 188. *Helotium papillare*—Karst., "Myco. Fenn.," p. 160. *Lachnea papillaris*—Gill., "Champ.," p. 80.

On dead wood.

Cups nearly $\frac{1}{4}$ of a line broad.

Gregarious, crowded, not adnate, waxy, rather firm; margin entire, denticulated; when dry closed, granuliform, persistent, so slightly tinged with yellow that it can scarcely be called straw-coloured (Fries).

The hairs are septate, faintly brown, with crystal granules at the summits.

Name—*Papilla*, the nipple; appearing covered with papillæ.

Greenhithe, Kent! (Sowerby).

(*b*) *Sporidia fusiform or clavate.*

(*a*) *Paraphyses filiform or absent.*

39. *Lachnella spadicea.* (Pers.)

Cups scattered, sessile, subgloboso-hemispherical, at length expanded; externally clothed with a dense, compact, spadiceous tomentum; disc rather paler; asci cylindraceo-clavate; sporidia 8, elliptic or fusiform, 8 × 2μ; paraphyses slenderly filiform.

Peziza spadicea—Pers., "Myco. Eur.," p. 252; Fries, "Sys. Myco.," ii. p. 98. *Lachnea spadicea*—Gill., "Champ.," p. 77.

On dead stems of *Ulex.*

Cups 500μ broad. The tomentum consists of short, septate, closely set hairs, which are granular within.

Name—*Spadiceus*, bay-colour.

In Herb. Berkeley, without locality!

40. *Lachnella corticalis.* (Pers.)

Cups gregarious, sessile, globose, then hemispherical, firm, flocculose-tomentose, rufescent or whitish-grey; hymenium same colour; asci cylindraceo-clavate; sporidia 8, clavate or fusiform, straight or curved, 13 × 4μ; paraphyses filiform.

Peziza corticalis—Pers., "Obs.," i. p. 28, 112; "Myco. Eur.," p. 267; D. C., "Flo. Fr.," ii. p. 80; A. and S., "Consp.," p. 322; Fries, "Sys. Myco.," ii. p. 96; B. and Br., "Ann. Nat. Hist.," 311 and 562; Karst., "Mon. Pez.," p. 186; Cooke, "Handbk.," No. 2041; Nyl., "Pez. Fenn.," p. 27. *Lachnella corticalis*—Fries, "Summa Veg. Scan.," p. 365; Fckl., "Symb. Myco.," p. 280. *Helotium corticale*—Karst., "Myco. Fenn.," p. 159. *Lachnea corticalis*—Gill., "Champ.," p. 84. *Lachnella corticalis*—Pat., p. 30, f. 71.

Exs.—Desm., "Crypt. Fr.," ed. i. 703, ed. ii. 72; Rabh., "Herb. Myco.," ed. ii. 625; and "Fung. Eur.," ed. nov. 915; Karst., "Fung. Fenn.," 260; Fckl., "F. Rh.," 1120; Phil., "Elv. Brit.," 119.

On dead bark of trees.

Cups nearly $\frac{1}{2}$ a line broad; at first globose, opening by a narrow mouth. The hairs are usually pale, but sometimes brown or reddish-brown, short, and tapering. The colour of the exterior varies, being paler towards the margin.

Name—*Cortex*, bark; growing on bark.

Bristol (Mr. H. O. Stephens). Thame (Dr. Ayres). Rudloe, Wilts (Mr. C. E. Broome). Leigh Woods, near Bristol! (Mr. C. Bucknall). Forres, N.B.! (Rev. Dr. Keith). Forden, North Wales (Rev. J. E. Vize). Attingham Park, Salop! Rushbury, Salop! Bomere, Salop!

41. *Lachnella canescens.* (Cooke.)

Gregarious or crowded, sessile, hemispherical, firm; clothed externally with flexuous, brown, septate hairs; hymenium fuliginous-brown; asci clavate; sporidia fusiform, at length pseudo-1-septate, 9—12 × 2μ; paraphyses filiform.

Peziza canescens—Cooke in litt.

On naked wood.

Cups nearly $\frac{1}{4}$ of a line broad. This differs from *L. corticalis* in the fusiform sporidia, and the more conspicuous septate hairs of the exterior.

Name—*Canus*, hoary.

Near Hereford (Mr. James Renny).

42. *Lachnella variecolor.* (Fries.)

Cups gregarious, sessile, but not adnate, globose, then hemispherical, rather firm; externally flocculoso-villose; hymenium urceolate, white, becoming pallid; asci cylindraceo-clavate; sporidia 8, oblong or subfusiform, 7—11 × 2—3μ; paraphyses filiform, slender.

Peziza variecolor—Fries, "Sys. Myco.," ii. p. 100; "Eng. Flo.," v. p. 197; Cooke, "Handbk.," 2048. *P. sulphurea*—Pers., "Icon. et. Descr.," t. 8, f. 4, 5. *Tapesia variecolor*—Fckl., "Symb. Myco.," p. 302. *Peziza albolutea*—Nyl., "Pez. Fenn.," p. 29; Karst., "Mon. Pez.," p. 187. *P. flavo-fuliginea*—Karst., "Pez. et. Ascob.," p. 20.

P. sulphureo-cæsia—Schum., "Saell.," p. 432. *Helotium albo-luteum*—Karst., "Myco. Fenn.," p. 160. *Lachnea variecolor*—Gill., "Champ.," p. 83, c. i.

On rotten wood.

Cups 250 to 300μ broad.

Gregarious, thickset, not adnate, waxy, rather firm, scarcely 1 line broad, regular; margin entire, denticulated, closed when dry, granuliform, persistent, so slightly tinged with yellow that it can scarcely be called straw-coloured (Fries).

Inserted on the authority of Sowerby's *P. hydnoides*, quoted by Fries as this species. Having examined the original specimen of Sowerby, I was unable to detect any asci or sporidia. The dimensions of the sporidia are from Karsten.

Name—*Varius*, various, *color*, colour.

43. *Lachnella grisella.* Cooke and Phil.

Cups gregarious, sessile, rarely substipitate, at first turbinate, then hemispherical, very pale brown, furfuraceous-tomentose, perpendicularly striate; margin whitish, fimbriate; hymenium brown; asci clavate; sporidia 8, oblong-fusiform, 4—7 × 1—1·5μ; paraphyses slenderly filiform.

Peziza grisea—Carmichael in Herb. Kew., No. 82.

On dead decorticated wood.

Cups 100 to 500μ broad. The short, septate, scarcely coloured hairs can only be seen when magnified about 50 diameters.

The locality is not given, but, having been collected by the late Dr. Carmichael, it was probably from Scotland.

Name—Diminutive of *griseus*, grey.

44. *Lachnella citricolor.* (B. and Br.)

Cups very shortly stipitate or sessile, between waxy and fleshy, turbinate, finely tomentose, citron-colour; asci clavate; sporidia fusiform, dotted with oil drops, 20—25 × 5—6μ; paraphyses linear.

Peziza (Dasyscyphæ) citricolor—B. and Br., "Ann. Nat. Hist.," 1321, t. xix. f. 14.

On rotten wood.

45. *Lachnella Stockii.* (Cooke and Phil.)

Cups gregarious or crowded, sessile, becoming plane; externally rufus-brown, clothed with short, septate, brown hairs; hymenium concave, pale rufus; asci cylindraceo-clavate; sporidia 8, elongate-fusiform, 3-septate, 20—22 × 2—3μ.

Peziza Stockii—Cooke and Phil. in Herb. Kew.

On dead herbaceous stems.

Cups 500μ broad. The flesh is rather firm and thin; the paraphyses were not seen.

Name—After D. Stock.

Bungay! (Stock, No. 100 in Herb. Kew).

46. *Lachnella prasina.* Quelet.

Cups gregarious or crowded, sessile, at first hemispherical, then expanded, becoming nearly plane, thin, waxy, soft, olive-brown, clothed with bright, rufus, slender, flexuous, hyaline hairs; hymenium greenish-bistre or beautiful green, at length pale cinereous; asci cylindraceo-clavate; sporidia 8, fusiform, straight or curved, 10—15 × 2—3μ; paraphyses filiform.

Lachnella prasina—Quelet, "Assoc. Fran.," 1880, p. 13, t. ix. fig. 5. *Peziza prasina*—Bucknall, "Fung. Bristol," No. 997, fig. 3. *Lachnea prasina*—Gill., "Champ.," p. 210.

On dead culms of *Phalaris arundinacea* in water or very damp places. Summer.

Cups nearly ½ a line broad, applanate; margin incurved; hairs bright red, colourless in the upper portion, slender, flexuous.

Name—*Prasinus*, green; like leeks.

Chedder! (Mr. C. Bucknall).

47. *Lachnella dumorum.* (Rob.)

Cups scattered, sessile, turbinate, then expanded, externally villose, with short, fulvo-rufus hairs; hyme-

nium concave, white; asci clavate; sporidia 8, fusiform, 5 × 1μ; paraphyses filiform, slender.

Peziza dumorum—Rob. in Desm., "Ann. Sc. Nat.," t. xiv. 1850.

On the under side of dead bramble-leaves.

Cups 250μ broad. The hairs are short, reddish, bay-brown; the disc becomes cinereous or brownish.

Name—*Dumus*, a bramble; from the habitat.

Batheaston, near Bath! (Mr. C. Broome). Dolgelly, North Wales!

48. *Lachnella Schumacheri.* (Fries.)

Cups gregarious or crowded, sessile, hemispherical, externally tomentose, brown; hymenium becoming nearly plane, purplish-brown or cinereous; asci cylindraceo-clavate; sporidia 8, fusiform or cylindraceo-fusiform, straight or sometimes curved, 8—13 × 2—3μ; paraphyses filiform.

Peziza Schumacheri—Fries, "Sys. Myco.," ii. p. 98; "Eng. Flo.," v. p. 196; Cooke, "Handbk.," No. 2045; Gill., "Champ.," p. 89, c. i.

Exs.—Phil., "Elv. Brit.," 167.

On dead wood. Not uncommon. Autumn.

Cups about $\frac{1}{2}$ to $\frac{3}{4}$ of a line broad, dark brown; hymenium purplish-brown or cinereous; margin fringed with very short, brown, septate hairs, hardly distinguishable even with a pocket lens, hence it is doubtful whether it should not be removed to *Mollisia*, near *cinerea*.

Name—After C. F. Schumacher.

Var. β. *plumbea.* (Grev.) Distinguished by the lead-coloured or bluish hymenium.

Peziza plumbea—Grev., t. 11; "Flo. Dan.," t. 1786, f. 1.

North Wootton! (Mr. C. B. Flowright). Darenth (Dr. Cooke). Shrewsbury!

49. *Lachnella escharodes.* (B. and Br.)

Cups scattered, sessile, globose, then hemispherical, rugose, rough with short, whitish, deciduous flocci, then

dingy olivaceous-green; margin paler, fringed with delicate flocci; hymenium cinereous; asci cylindraceo-clavate or irregularly clavate; sporidia 8, linear oblong or oblong-fusiform, straight or curved, 8 × 3μ; paraphyses filiform, branched.

Peziza escharodes—B. and Br., "Ann. Nat. Hist.," No. 1322, t. xix. f. 15; "Grevillea," i. p. 130.

Exs.—Rabh., "Fung. Eur.," 1418; Cooke, "Fung. Brit.," 564, and ed. ii. No. 548; Phil., "Elv. Brit.," 73.

On dead stems of *Rubus* and *Rosa*.

Cups nearly ½ a line broad; at first closed, globose, then expanded, vertically striate or rugose, becoming black, except the margin, but always appearing rough with very minute hairs under the microscope.

Name—ἐσχάρα, scab; scaly, resembling a scab.

Forres, N.B.! (Rev. Dr. Keith). Eastbourne! (Mr. C. J. Muller). Hencote, near Shrewsbury!

(β) *Paraphyses acerose.*

50. *Lachnella barbata.* (Kunze.)

Cups gregarious, sessile, globose, then expanded, at length nearly plane, firm; externally ferruginous, tomentose; hairs long, septate, obtuse; hymenium pallid; asci cylindraceo-clavate; sporidia 8, fusiform, 5—7 × 1—2μ; paraphyses acerose, rather slender.

Peziza barbata—Kunze in Fries, "Sys. Myco.," ii. p. 99. *Lachnea barbata*—Gill., "Champ.," p. 82 (?).

Exs.—Fries, "Scl. Suec.," 332.

On dead stems of *Lonicera*.

Cups nearly ½ a line broad.

Name—*Barba*, a beard; hairy.

Var. β. *pellita.* (Pers.)

Differs from the type in being greyish or dilutely gilvus.

Pers., "Myco. Eur.," i. p. 264; Bucknall, "Fung. Bristol," No. 619; "Grevillea," x. p. 67. *Lachnea pellita*—Gill., "Champ.," p. 83.

On *Lonicera* and beech-mast.

Name—*Pellitus*, clothed with fur.
Brackley Coombe, near Bristol! (Mr. C. Bucknall).

51. *Lachnella nidulus.* (Schm. and Kunze.)

Cups scattered or gregarious, sessile, hemispherical, then nearly plane, firm; externally brown, strigose-hirsute; hairs short, septate, dark brown; hymenium pallid-yellow; asci cylindraceo-clavate; sporidia 8, fuso-filiform, 5—10 × 1μ; paraphyses acerose, rather stout, a little exceeding the asci.

Peziza nidulus—Schm. and Kunze, exs. 72; Pers., "Myco. Eur.," i. p. 250; Fries, "Sys. Myco.," ii. p. 104; Karst., "Pez. et Ascob.," p. 22; and "Mon. Pez.," p. 200; Nyl., "Pez. Fenn.," p. 30. *Lachnum nidulus*—Karst., "Myco. Fenn.," p. 181. *Lachnea nidulus*—Gill., "Champ.," p. 87, c. i.

Exs.—Rabh., "Herb. Myco.," ed. ii. 19; and "Fung. Eur.," nov. ed. 807; Moug. and Nest., 588; Karst., "Fung. Fenn.," 630.

On *Spiræa Ulmaria.*

Cups 400 to 800μ broad. The hairs are short, rigid, paler near the obtuse, somewhat enlarged apices.

Name—*Nidus*, a nest; a little nest.

Forres, N.B.! (Rev. Dr. Keith).

52. *Lachnella sulphurea.* (Pers.)

Cups gregarious, sessile, subglobose; externally strigose-tomentose, sulphur-coloured; hymenium concave, pallid; asci cylindrical; sporidia 8, fuso-filiform, simple or spuriously 1 to 3-septate, 14 × 2μ; paraphyses acerose, rather stout, exceeding the asci.

Peziza sulphurea—Pers., "Tent. Disp. Meth.," p. 33; "Myco. Eur.," p. 250 (in part); Grev., t. 83; "Eng. Flo.," v. 198; Karst., "Mon. Pez.," p. 199; Nyl., "Pez. Fenn.," p. 32; Cooke, "Handbk.," No. 2053; Pat., p. 124, f. 280. *Peziza hydnoidea*—Purt., No. 1049. *Trichopeziza sulphurea*—Fckl., "Symb. Myco.," 296. *Lachnum sulfureum*—Karst., "Myco. Fenn.," p. 176. *Lachnea sulfurea*—Gill., "Champ.," p. 81, c. i.

Exs.—Karst., "Fung. Fenn.," 62; Phil., "Elv. Brit.," 25; Roumg., "Fung. Gal.," 1415.

On dead nettle-stems and *Stachys*.

Cups ¼ to ¾ of a line.

Name—*Sulphur*, brimstone; sulphur-coloured.

Forres, N.B.! (Rev. Dr. Keith). Rose Hill, near Shrewsbury!

Var. β. *leucophæa*. (Pers.)

Scattered or gregarious, hemispherical, pallid-tomentose, hairs whitish or sulphury, often at length ferruginous; hymenium whitish; asci subcylindrical; sporidia 8, fuso-filiform, 7—16 × 1—1·5μ; paraphyses acerose, slightly exceeding the asci, rather slender.

Peziza sulphurea, var. *leucophæa*—Pers., "Myco. Eur.," 250; Weinm., "Myco.," p. 451. *P. leucophæa*—Nyl., "Pez. Fenn.," p. 31; Karst., "Mon. Pez.," p. 199. *Lachnum leucophæum*—Karst., "Myco. Fenn.," p. 177; "Scott. Nat.," vi. 123.

Exs.—Rab., "Herb. Myco.," ed. ii. 707; Desm., "Crypt. Fr.," ed. i. 173, and ed. ii. 121; Karst., "Fung. Fenn.," 62 (in part); Rehm, "Asco.," 308; Cooke, "Fung. Brit.," ed. ii. 372.

On nettles, large *Umbelliferæ*, and *Artemisia*.

Certainly not worthy of specific rank.

Name—λευκός, white, φαίος, dusky; grey ash-coloured.

Leigh Downs, near Bristol! (Mr. C. Bucknall). Forden, North Wales!

B. HAIRS OF CUP HYALINE.

(*a*) *Sporidia elliptic, oblong, or subcymbiform.*

(α) *Paraphyses filiform or absent.*

(i.) Cups coloured.

53. *Lachnella dematiicola*. (B. and Br.)

Cups gregarious, minute, hemispherical, watery-umber, ciliated with long, hyaline, non-septate flocci; hymenium same colour, or cinereous; asci cylindraceo-clavate;

sporidia subcymbiform, hyaline, 10 × 2·5μ; paraphyses slenderly filiform.

Peziza dematiicola—B. and Br., "Ann. Nat. Hist.," No. 1070, t. 15, f. 20; Cooke, "Handbk.," No. 2117.

On dead wood, nestling amongst the flocci of some Helminthosporoid fungus, but whether at all related or not we cannot say. This very beautiful, though minute, species has a mixed resemblance to an *Excipula* and such *Ascoboli* as *A. ciliatus* (B. and Br., *l. c.*).

Cups 100 to 500μ broad. It is not merely ciliated, but clothed with delicate hyaline hairs. The cups when old are applanate, extremely thin, having a raised margin.

Name—*Dematium*, a genus of *Hyphomycetes*, *colo*, to inhabit.

Herb. Berkeley! Sutton Coldfield, near Birmingham! (Mr. W. B. Grove).

54. *Lachnella melazantha.* (Fries.)

Gregarious, sessile, minute; externally farinaceo-villose, greyish-yellow; hairs hyaline; hymenium rather concave, black; margin a little prominent; asci cylindraceo-clavate; sporidia 8, oblong-elliptic, 5—7 × 2μ; paraphyses (?).

Peziza melazantha—Fries, "Sys. Myco.," ii. p. 97; "Eng. Flo.," v. p. 196; Cooke, "Handbk.," 2043. *Lachnella melazantha*—Gill., "Champ.," p. 89.

On fallen branches of beech. Autumn. Very rare.

Cups ¼ of a line broad, turbinate, black at the base; texture dry and firm; the hairs are very slender and flexuous. But for the black disc and being sessile, it resembles *L. tricolor* (Sow.).

Name—μελάς, black, and ξανθός, yellow; from the colour of the exterior and the disc.

Appin, N.B. (Captain Carmichael).

(ii.) Cups white or greyish-white.

55. *Lachnella sporotricha.* (Oude.)

Cups very minute, sessile, globose, opening by a very minute pore, white, villose; hairs slender, colourless,

hyaline, nonseptate, disposed spirally round the margin; asci clavate; sporidia 8, colourless, narrowly cylindrical or subfusiform, 7 × 1·5μ; paraphyses slenderly filiform.

Peziza sporotricha—Oude. in "Arch. Need.," viii.; Hedw., 1874, p. 87. *Peziza asterostoma*—Phil., "Grevillea," vii. p. 140.

On dead herbaceous stems. Spring.

Cups not more than 200μ broad. The hairs, which consist of a single, elongated, tapering cell, are about 70μ long, and are confined chiefly to the margin, forming a horizontal fringe, turned obliquely from the margin, all bent in the same direction.

Name—σπόρος, a seed, θρίξ, hair; resembling a seed with hairs.

Clungunford, Salop!

c

56. *Lachnella leuconica.* (Cooke.)

Cups gregarious, sessile, expanded, submembranaceous, white; clothed with long, slender, tapering, flexuous hairs; margin elevated, ciliated; asci cylindraceo-clavate; sporidia 8, oblong or oblong-elliptic, straight or curved, 8 × 2μ; paraphyses slenderly filiform.

Peziza leuconica—Cooke in herb.

On dead wood.

Cups minute ($\frac{1}{4}$ to $\frac{1}{2}$ a line broad), flexuous, thin. The hairs are colourless and non-septate.

Name—*Leuconicus*, resembling white cotton-wool.

Clova, N.B.!

c

57. *Lachnella hyalina.* (Pers.)

Cups gregarious, sessile, globose, then expanded, becoming nearly plane, thin, soft, hyaline, white, villose or pilose; asci cylindraceo-clavate; sporidia 8, elliptic, 8 × 3μ; paraphyses scarce, slenderly filiform. (Plate VIII fig. 48.)

Peziza hyalina—Pers., "Syn. Fung.," p. 655; Fries, "Sys. Myco.," ii. 102 (in part); "Eng. Flo.," v. p. 198 (in part); Karst., "Pez. et Ascob.," p. 21 (in part); and "Mon. Pez.," p. 180; Nyl., "Pez. Fenn.," p. 53; Cooke,

"Handbk.," 2052 (in part). *Pseudo-helotium hyalinum*—Fckl., "Symb. Myco.," p. 298. *Helotium hyalinum*—Karst., "Myco. Fenn.," p. 144. *Lachnea hyalina*—Gill., "Champ.," p. 79.

Exs.—Phil., "Elv. Brit.," 24; Rabh., "Fung. Eur.," 1615.

On dead chips and stumps, and inside bark.

Cups 200 to 800μ broad. A minute, slender species, with exceedingly delicate hairs, which when dry do not easily revive with moisture. The cups assume a darker shade on drying, and "resemble minute grains of white sand scattered over the brown bark."

It is almost certain that at least two distinct species have been hitherto included under this name in herbaria, if not more.

Name—*Hyalinus*, transparent.

Ercall Hill! and Shelton! near Shrewsbury; Linwilg, N.B.! (Rev. Dr. Keith).

58. *Lachnella fugiens.* Phil.

Cups scattered, sessile, globose, then expanded, thin, white, villose; asci oblong-clavate or subfusiform; sporidia 4 to 8, oblong-linear or elliptic, straight or slightly curved, 7 × 2μ.

Peziza fugiens—Phil. in Bucknall's "Fungi of the Bristol District" ("Proceedings of Bristol Nat. Soc."), pt. iv. No. 800, t. iv. f. 2.

On dead rushes in bogs.

Cups 50μ broad; asci 20μ long, 5μ broad; the hairs of the exterior very short, non-septate, colourless.

Name—*Fugiens*, fleeting; from its ephemeral character.

Mangotsfield and Abbots Leigh, near Bristol! (Mr. Cedric Bucknall).

59. *Lachnella punctoidea.* (Karst.)

Cups gregarious, sessile or substipitate, sub-immarginate, nearly naked, convex, when dry plane or slightly

concave, hyaline-white; hymenium when dry testaceous; asci cylindraceo-clavate; sporidia 8, elliptic, 4—5 × 2—3μ; paraphyses slenderly filiform.

Helotium punctoideum—Karst., "Symb.," pp. 215 and 240; "Myco. Fenn.," p. 151. *Peziza punctoidea*—Karst., "Grevillea," p. 61.

Exs.—Karst., "Fung. Fenn.," 745; Cooke, "Fung. Brit.," ed. ii. No. 551.

On dead leaves of *Epilobium*. Autumn.

Cups scarcely 250μ broad.

"We have referred our specimen for the present to Karsten's species, of which we have seen no specimens. The fruit hardly accords, otherwise it agrees very well with the description" (Cooke in "Grevillea," v. p. 61).

"Apothecia when dry sometimes subhemispherical or subgloboso-contracted, slightly furfuraceous, sessile, or with a punctiform stem" (Karst., *l. c.*).

Name—*Punctum*, a point, εἶδος, likeness.

Dinmore, near Hereford! (Dr. M. C. Cooke).

(*b*) *Sporidia fusiform or clavate.*

(*a*) *Paraphyses filiform or clavate.*

(i.) Cups coloured.

60. *Lachnella micacea.* (Pers.)

Cups scattered or gregarious, very minute, sessile, expanded, extremely tender; externally farinose-tomentose, pale red or dilute-cinnamon; hymenium the same colour; asci cylindraceo-clavate; sporidia 8, fusiform, 3—5 × 1μ; paraphyses slenderly filiform.

Peziza micacea—Pers., "Myco. Eur.," p. 268; Fries, "Sys. Myco.," p. 105. *Lachnea micacea*—Gill., "Champ.," p. 89; Buck., "Fung. Bristol," No. 799.

On dead stems of thistle.

Cups about 200 to 300μ broad. The hairs of the exterior are short, slender, and deciduous.

Name—*Mica*, grain, granule; like a shining grain.

Leigh Woods, near Bristol! (Mr. C. Bucknall).

61. *Lachnella Tami.* (Desm.)

Var. *Humuli* (nov. var.).

Gregarious, sessile, hemispherical, then expanded, pubescent, white or very pale yellow; asci clavate; sporidia 8, fusiform or nearly oblong, 8 × 2μ; paraphyses filiform, scarce.

On *Humulus lupulus.*

Cups 200 to 400μ. So near to *L. Tami* that it hardly deserves to be called a variety, except for more developed hairs and different host-plant. The hairs are very short, colourless, and non-septate.

Darenth! (Dr. M. C. Cooke).

62. *Lachnella Berkeleii.* (Blox.)

Gregarious, sessile, cups hemispherical, furfuraceous-floccose, almost pruinose; hymenium concave, tawny; asci clavate; sporidia 8, oblong, subfusiform or cymbiform, 5—8 × 2μ; paraphyses not seen.

Peziza Berkeleii—Blox. in B. and Br., "Ann. Nat. Hist.," No. 770; Cooke, "Handbk.," No. 2057.

On dead stems of *Umbelliferæ.*

"Very minute, gregarious, often crowded, hemispherical, with the margin at first strongly inflected, clothed with furfuraceous-yellowish flocci. In the younger specimens the orifice is distinctly marked with radiating lines. Hymenium concave, tawny; asci clavate; sporidia ·0003 to ·0004 inch long, oblong, subfusiform or cymbiform."

"Under the lens the coat consists of very short flocci, intermixed with minute hyaline amorphous scales. We cannot point out any very near ally, except possibly *P. humulis*, Desm. It resembles *P. apala* more closely than any other species with which we are acquainted" (B. and Br., *l. c.*).

Name—After the Rev. M. J. Berkeley.

Twycross! (Rev. A. Bloxam).

(ii.) Cups white or greyish-white.

63. *Lachnella œdema.* (Desm.)

Cups very minute, rather crowded, sessile, globose, then expanded, slightly pubescent, greyish white, soft, subtremellose; asci clavate, bent; sporidia 8, biseriate, fusiform, 6—9 × 2μ; paraphyses scarce, slenderly filiform.

Peziza œdema—Desm., "Ann. Sc. Nat.," 1850; Steven., "Myco. Scot.," p. 317; "Grevillea," viii. p. 101. *P. epiphragmidium*—Phil. in Herb. *Mollisia œdema*—Gill., "Champ.," p. 128.

On decayed leaves of *Rubus fruticosus*, seated on *Phragmidium*.

Cups 100 to 150μ broad. Although the pubescence is visible under a low power of the microscope, the hairs are diffluent in water, and vanish away. When dried for the herbarium, it becomes pale fuliginous or watery-umber.

Name—οἴδημα, a swelling; seated on a swelling formed by the *Phragmidium*.

Dolgelly, North Wales! Scotland (Rev. Dr. Keith).

64. *Lachnella araneo-cincta.* Phil.

Cups scattered, minute, sessile, at first hemispherical, then expanded, concave, thin, white, when dry yellowish; margin ciliated with long, slender, flexuous, pointed, white hairs; asci broadly clavate; sporidia 8, biseriate, narrowly fusiform, acutely pointed, 10—13 × 1μ.

Peziza araneo-cincta—Phil. in Bucknall, "Fung. Bristol," No. 621; "Grevillea," x. p. 68.

Exs.—Phil., "Elv. Brit.," No. 169.

On decayed birch-leaves.

Cups 200 to 300μ broad. The hairs are non-septate, and so delicate that they are diffluent in water, with only slight pressure.

Name—*Araneum*, a spider's web, *cinctus*, girded; from the web-like hairs on the margin.

Clifton, near Bristol! (Mr. C. Bucknall).

65. *Lachnella aranea.* (De Not.)

Cups minute, scattered, sessile, at first hemispherical, then expanded, white, clothed with long, flexuous, entangled hairs; hymenium white, when dry pale yellow; asci cylindraceo-clavate; sporidia 8, biseriate, oblong or oblong-fusiform, 7 × 1μ; paraphyses slenderly filiform.

Peziza aranea—De Not., "Micro. Ital.," i. No. 1; "Grevillea," viii. pp. 101, 111. *Trichopeziza aranea*—Sacc., "Mich.," vi. p. 253. *Phialea aranea*—Gill., "Champ.," p. 111.

Exs.—Klotsch., "Herb. Myco.," ii. 17; Phil., "Elv. Brit.," 165; Ellis, "N. A. Fungi," 843.

On the inside of the husks of Spanish chestnut (*Castanea vesca*).

Cups about 100 to 300μ broad. They are at first mere tufts of snow-white, entangled hairs.

Name—*Araneum*, a spider's web; clothed with web-like hairs.

Holme Lacy, Herefordshire!

66. *Lachnella scrupulosa.* (Karst.)

Cups gregarious, sessile, thin, subhemispherical or subsoleniiform, white or yellowish-white, or cinerascent, rough with papillæ; asci cylindraceo-clavate; sporidia 8, narrowly fusiform or sub-acicular, 4—8 × 1—2μ; paraphyses filiform, slender.

Peziza scrupulosa—Karst., "Mon. Pez.," p. 178. *Helotium scrupulosum*—Karst., "Myco. Fenn.," p. 152. *Peziza tomipera*—Phil. in herb.

On dead thorn-wood.

Cups about 200μ broad. The external papillæ are formed by the ends of short, hair-like, tomiperous cells, which are remarkable from their habit of breaking off at the joints under slight pressure.

Name—*Scrupulosus*, full of little stones; rough from the papillæ on the outside.

Scarborough! (Mr. G. Massee).

(β) *Paraphyses acerose.*

(i.) Cups coloured.

67. *Lachnella albo-testacea.* (Desm.)

Cups scattered, erumpent, sessile, hemispherical, then expanded; externally white and brick-red colour, floccose; hairs slender, septate, flexuose; hymenium flesh-colour; asci cylindraceo-clavate; sporidia 8, fusiform, linear, straight or curved, 7—10 × 1—2μ; paraphyses acerose, slender.

Peziza albo-testacea—Desm., "Ann. Sc. Nat.," xix. (1843), p. 368; B. and Br., "Ann. Nat. Hist.," No. 560; Cooke, "Handbk.," No. 2059. *Lachnea albo-testacea*—Gill., "Champ.," p. 86.

Exs.—Desm., "Crypt. Fr.," 1415.

On dead stems of grass. July.

Cups about 500μ broad. "The exterior is of a brick-red colour, the hairs with which it is covered being white at their tips."

Name—*Albus*, white, *testaceus*, brick-coloured.

King's Cliffe (Rev. M. J. Berkeley).

68. *Lachnella candidata.* (Cooke.)

Snowy-white, sessile, soft, scattered or subgregarious, soon flattened; margin often lobed and irregular, slightly elevated; externally clothed with soft, tomentose hairs; asci subclavate; sporidia 8, minute, cylindrical, obtuse, hyaline, 7 × 1·5μ.

Peziza candidata—Cooke in "Grevillea," i. p 130.

On stems of *Rubus*.

Highgate (Dr. Cooke).

69. *Lachnella episphœria.* (Mart.)

Cups sessile, becoming plane; externally white, beset with long, ciliato-pilose hairs; hymenium pale yellowish.

Peziza episphœria—Mart., "Erl.," p. 465; Fries, "Sys. Myco.," ii. p. 100; "Eng. Flo.," v. p. 197; Cooke, "Handbk.," No. 2049.

On *Hypoxylon multiforme*, etc.

Minute, gregarious, crowded (Fries, *l. c.*).

I have seen several things under this name, but none of them appear to me to answer the description. The Rev. M. J. Berkeley says some of the specimens referred formerly to this species certainly belong to *Helotium pruinosum* (Jerd).*

Name—ἐπί, upon, σφαῖρα, a sphere; growing on a *Sphæria*.

Doubtful species.

70. *Lachnella plano-umbilicata.* (Grev.)

Small, sessile, gregarious, whole plant white, globose-concave, at length quite plain; ciliated with horizontal white hairs at the margin; hymenium gently umbilicate.

Peziza plano-umbilicata—Grev., "Flo. Edin.," p. 420; "Eng. Flo.," v. p. 198; Cooke, "Handbk.," 2054.

On dead nettles.

Wholly white, remarkably plane, with a small dimple in the centre of the hymenium, which in old age assumes a yellowish tinge. The external surface is covered with white hairs, which form a beautiful ciliated margin not in the least raised. The margin is so irregular, that if there had been fewer cilia it might have been called pectinate (Grev.).

As far as I know, there exists no authentic specimen of this either in the Edinburgh University Herbarium or in the Kew Herbarium.

SUBGENUS III.—FIBRINA. Fries.

Cups sessile or subsessile; externally fibrose-striate with adpressed hairs; epiphytal. (Plate VIII. fig. 49.)

Name—*Fibrinus*, of a beaver; from the felty texture of the receptacle.

ARRANGEMENT OF THE SPECIES.

A. Sporidia elliptic .. .. species 71, 72
B. Sporidia oblong .. .. „ 73

* B. and Br., "Ann. Sc. Nat.," No. 1174.

KEY TO THE SPECIES.

Hymenium greenish-olive	*rufo-olivacea.*
Hymenium umber-brown	*fraxinicola.*
Hymenium brownish	*siparia.*

A. SPORIDIA ELLIPTIC.

71. *Lachnella rufo-olivacea.* (A. and S.)

Cups scattered, sessile, firm, hemispherical, then plane; externally villose-pulverulent, dingy ferruginous-red; hymenium greenish-olive, at length black; asci cylindraceo-clavate; sporidia 8, globose-elliptic, binucleate, becoming pseudo-septate, 15 × 7μ; paraphyses filiform, septate, thickened at the apices. (Plate VIII. fig. 49.)

Peziza rufo-olivacea—A. and S., "Consp.," 320, t. 11, f. 4; Fries, "Sys. Myco.," ii. p. 99; "Eng. Flo.," v. p. 197; Mart., "Erl.," p. 464; Cooke, "Handbk.," No. 2046. *Velutaria rufo-olivacea*—Fckl., "Symb. Myco.," p. 300. *Lachnea rufo-olivacea*—Gill., "Champ.," p. 85.

Exs.—Rabh., "Fung. Eur.," 1420; Fckl., "F. Rh.," 1192.

On dead branches of rose and bramble.

Cups ¼ to ½ a line broad. Coarse brown granules are found on the exterior amongst the tomentum.

Name—*Rufus*, reddish-brown, *olivaceus*, olive-colour.

Longmynd and Red Hill, near Shrewsbury! Forres, N.B.! (Rev. Dr. Keith).

72. *Lachnella fraxinicola.* (B. and Br.)

Cups scattered or gregarious, sessile, at first closed, then opening with an irregular aperture, at length orbicular, slightly depressed; externally pale fawn-colour, furfuraceous; internally brown; hymenium umber-brown; asci cylindraceo-clavate; sporidia 8, broadly elliptic, faintly brown, 10—13 × 7—8μ.

Peziza fraxinicola—B. and Br., "Ann. Nat. Hist.," 1160, t. 4, f. 21; Cooke, "Handbk.," 2011.

On ash-twigs.

Cups about ½ a line broad, plane or slightly concave,

margined, much resembling *L. rufo-olivacea* (A. and S.); substance firm.

Name—*Fraxinus*, an ash, *colo*, to inhabit.

Northamptonshire! (Rev. M. J. Berkeley).

B. SPORIDIA OBLONG.

73. *Lachnella siparia.* (B. and Br.)

Cups erumpent, subsessile, at first globose, then cyathiform; externally furfuraceous, ochraceous; hymenium becoming brownish; asci linear-clavate; sporidia 8, linear-oblong, straight or curved, polari-nucleate, 10—12 × 2—3μ; paraphyses filiform, slender.

Peziza siparia—B. and Br., "Ann. Nat. Hist.," No. 772; Cooke, "Handbk.," No. 2079.

On decorticated elm-branches. October.

Cups 1 to 1½ lines broad. "Accompanied by a floccose stratum, which is, however, possibly not constant. Cup at first subglobose, then cyathiform, scarcely stipitate, but fixed by a broad base, with the margin free; externally ochraceous, furfuraceous; hymenium ochraceous, at length brownish; sporidia linear-oblong, ·00045 inch long, curved, often with a nucleus at either extremity" (B. and Br.).

Name—*Siparium*, a veil; from the furfuraceous veil.

Elmhurst! (Rev. M. J. Berkeley).

GENUS X.—TAPESIA. Fries.

Cups waxy or subcoriaceous, subsessile, crowded into a crust, or seated on a subtomentose subiculum (Fries, "Sys. Myco.," ii. p. 105). (Plate VIII. fig. 50.)

Name—τάπης, a carpet; seated on a carpet.

ARRANGEMENT OF THE SPECIES.

A. Cups externally villose or tomentose.
  (*a*) Sporidia fusiform or oblong.
    (*α*) Sporidia simple.. .. .. species 1–4
    (*β*) Sporidia septate .. .. „ 5, 6

B. Cups externally naked.
(*a*) Sporidia fusiform or oblong.
(*α*) Sporidia simple .. .. species 7
(*β*) Sporidia septate or nucleate .. „ 8
Doubtful .. .. „ 9

KEY TO THE SPECIES.

	Tapesium blood-red	*sanguinea.*
	Tapesium golden-yellow	*aurelia.*
	Tapesium blackish-brown	1
	Tapesium whitish	3
1.	Growing on *Aira cæspitosa*	*mutabilis.*
	Growing on bark or wood	2
2.	Cups glabrous; hymenium pallid-white, cinereous, or brownish	*fusca.*
	Cups subtomentose; hymenium cinereous	*Rosæ.*
	Cups rufous, with a satiny lustre	*Johnstoni.*
3.	Hymenium pale tawny	*rhabdosperma.*
	Hymenium bluish-grey, sometimes black	*cæsia.*
	Hymenium whitish, when dry yellowish	*eriobasis.*

A. CUPS EXTERNALLY VILLOSE OR TOMENTOSE.

(*a*) *Sporidia fusiform or oblong.*

(*a*) *Sporidia simple.*

1. *Tapesia cæsia.* (Pers.)

Sessile, becoming plane, villous, whitish; margin obtuse; base seated on a subiculum of long, interwoven, whitish mycelium; hymenium subgelatinous, fuliginous brown or bluish-grey; asci cylindraceo-clavate; sporidia 8, cylindrical or oblong-elliptic, straight or curved, 5—6 × 2*μ*; paraphyses slenderly filiform.

Peziza Lichenoides—Pers., "Icon. et Desc.," p. 29, t. 7, f. 1. *Peziza cæsia*—Pers., "Syn. Fung.," p. 657; "Myco. Eur.," p. 272; Fries, "Sys. Myco.," ii. p. 108; Nees, "Sys.," f. 272; Dit. and Sturm., "Deut. Flo.," iii. t. 31; "Eng. Flo.," v. p. 199; Cooke, "Handbk.," No. 2068. *Tapesia cæsia*—Fckl., "Symb. Myco.," p. 301. *Peziza chavetiæ*—Lib., exs. No. 26; Cooke, "Handbk.," No. 2069. *Lachnea cæsia*—Gill., "Champ.," p. 92.

Exs.—Libert., "Crypt. Ard.," No. 26; Cooke, "Fung. Brit.," No. 562, ed. ii. 555; Phil., "Elv. Brit.," No. 76.

On chips of oak, etc. Autumn.

Cups 300 to 500μ broad. Forming a continuous layer on chips, in damp places. The tapesium becomes yellow on drying. "Crowded; when young concave, then expanded." I have examined original specimens of *P. chavetiæ* in Mad. Libert. exs., and find them to correspond exactly with *P. cæsia*.

Name—*Cæsius*, sky-coloured; greyish-blue.

Appin (Captain Carmichael). Holme Lacy and Whitfield, near Hereford! near Shrewsbury! Grantown, N.B.! (Rev. Dr. Keith).

2. *Tapesia eriobasis.* (Berk.)

Gregarious, but generally distinct; cups orbicular, tomentose, fixed to little, round, snow-white, cottony spots, which are sometimes confluent; when fresh white, when dry the hymenium has a yellowish tinge; asci slightly clavate or obtusely lanceolate; sporidia oblong, ·0002 to ·00025 inch long (5 to 5·5μ) (Berk.).

Peziza eriobasis—Berk., "Ann. Nat. Hist.," No. 312; Cooke, "Handbk.," No. 2070.

On smooth inner surface of bark.

Differs from *P. cæsia* and *P. chavetiæ* in its larger cups, pale disc, and several other points. The cups are sometimes extremely thin, crowded, and pressed very close to the matrix, but this is not usually the case (B. and Br.).

Name—ἔριον, wool, βάσις, a base; from the woolly carpet.

3. *Tapesia mutabilis.* (B. and Br.)

Minute, at first presenting little brown villous specks from which the cups burst; cups scattered; externally brown, hemispherical, villous, becoming smooth and dirty-white; asci clavate; sporidia 8, fusiform, biguttulate, endochrome sometimes restricted to either extremity, 13—18 × 2—4μ; paraphyses slenderly filiform.

Peziza mutabilis—B. and Br., "Ann. Nat. Hist.," No. 564; Cooke, "Handbk.," No. 2072.

On leaves of *Aira cæspitosa*.

"When old it bears some resemblance to pale forms of *P. atrata* and *P. palustris*" (M. J. B.).

Cups 200 to 300μ broad, seated on a dark radiating tapesium. No hairs are discoverable on the cups in the original specimens.

Name—*Mutabilis*, variable.

Derry Hill, Wilts!

4. *Tapesia Rosæ*. (Pers.)

Sessile, subcoriaceous, concave, subtomentose, bright brown, as well as the tomentose subiculum; asci cylindraceo-clavate; sporidia 8, oblong-fusiform, 7—10 × 2·5μ; paraphyses indistinct.

Peziza Rosæ—Pers., "Obs.," 2, p. 82; "Myco. Eur.," p. 278; Fries, "Sys. Myco.," ii. p. 109; "Eng. Flo.," v. p. 200; Tode, i. f. 41; Berk., "Mag. Zool. and Bot.," No. 10; Karst., "Pez. et Ascob.," p. 25; Nyl., "Pez. Fenn.," p. 34; Cooke, "Handbk.," No. 2073. *Tympanis obtexta* (Wallr.), var. *pezizæformis*—Wallr., "Flo. Germ.," ii. p. 428. *Tapesia Rosæ*—Fckl., "Symb. Myco.," p. 301. *Mollisea Rosæ*—Karst., "Myco. Fenn.," p. 208. *Lachnea Rosæ*—Gill., "Champ.," p. 92.

Exs.—Rabh., "Fung. Eur.," nov. ed., 359; Karst., "Fung. Fenn.," 276; Fckl., "F. Rh.," 1874; Berk., exs. No. 157; Cooke, "Fung. Brit.," 477; Phil., "Elv. Brit.," 30.

On dead branches of *Rosa canina*. Autumn.

Cups ½ a line broad; subiculum tomentose, broadly effused, indeterminate; cups scattered or aggregated, at first urceolate; margin inflexed, then greatly expanded, when dry corrugated and deformed.

Name—*Rosa*, the genus to which the wild rose belongs.

Appin (Capt. Carmichael). King's Lynn! (Mr. C. B. Plowright). Clungunford, Salop!

Var. *Prunicola*. Fckl.

Cups twice the size of those in *T. Rosæ*, very black, and the hairs more brown-black; asci oblong, stipitate;

sporidia uniseriate, cylindrical, obtuse at the ends, straight, hyaline, 10 × 2μ; paraphyses filiform, not clavate.

Tapesia Prunicola—Fckl., "Symb. Myco.," p. 302.

Exs.—Fckl., "F. Rh.," 1190; Phil., "Elv. Brit.," 30*b*.

On branches of *Prunus spinosa*.

Name—*Prunus*, the genus to which the sloe belongs; growing on sloe.

King's Lynn! (Mr. C. B. Plowright).

(β) *Sporidia septate.*

5. *Tapesia rhabdosperma.* (B. and Br.)

Subiculum thin, tomentose, pale, tawny; cups scattered, of the same colour; externally paler, villose; margin inflexed; hymenium brighter; asci lanceolate, obtuse; sporidia 8, filiform, multiguttulate, 65 × 3μ; paraphyses slenderly filiform, sometimes branched.

Peziza rhabdosperma—B. and Br., "Ann. Nat. Hist.," No. 1621; "Grevillea," v. p. 61.

On dead wood. November.

Cups about 500μ broad.

This is so near *Arachnopeziza aurata*—Fckl. ("Symb. Myco.," p. 304) that I am disposed to think it at most a variety, differing in its paler colour. The sporidia correspond exactly.

Name—ῥάβδος, a rod, σπέρμ, seed; from the form of the sporidia.

Leigh Downs! (C. E. Broome).

6. *Tapesia aurelia.* (Pers.)

Sessile, scattered, subventricose, golden-yellow; subiculum thin, whitish; asci cylindraceo-clavate; sporidia 8, oblong or oblong-fusiform, triseptate, 14—20 × 3—5μ; paraphyses slenderly filiform. (Plate VIII. fig. 50.)

Peziza aurelia—Pers., "Myco. Eur.," p. 270; Fries, "Sys. Myco.," ii. p. 107; "Eng. Flo.," v. p. 199; Nyl., "Pez. Fenn.," p. 50; Cooke, "Handbk.," No. 2065. *Peziza Wauchii*—Grev., t. 139; Pat., p. 126, f. 285. *Arachnopeziza aurelia*—Fckl., "Symb. Myco.," p. 303. *Patellaria*

bicolor—Curr., "Linn. Trans.," xxiv. 491, t. 51, f. 15, 16; Cooke, "Handbk.," 2175. *Lachnea aurelia*, Gill., "Champ.," p. 91, c. i. (excl. sporidia).

Exs.—Mong. and Nest., No. 783; Rav., v. No. 41; Lib., "Crypt. Ard.," No. 127; Fckl., "F. Rh.," 1191; Cooke, "Fung. Brit.," 563; Phil., "Elv. Brit.," 29; Roumg., "Fung. Gal.," 448.

On the ground beneath decaying oak-leaves, mast, etc. Spring.

Cups 1 to 2 lines broad, woolly; subiculum radiating. A most beautiful species (Berk. in "Eng. Flo."). The ends of the sporidia are often furnished with a short cilium.

Name—*Aureus*, golden.

Foxhall, near Edinburgh (Capt. Wauch). Near Ludlow! Minsterley, Salop! Whitfield, near Hereford!

B. CUPS EXTERNALLY NAKED.

(*a*) *Sporidia fusiform or oblong.*

(*a*) *Sporidia simple.*

7. *Tapesia sanguinea.* (Pers.)

Cups sessile, concave, smooth, becoming blackish; base surrounded by a short blood-red tomentum; asci clavate, obtuse; sporidia 8, ovoid-oblong or oblong-ellipsoide, simple, hyaline, 6—10 × 2—3μ; paraphyses filiform, thickened at the apex, fuscescent.

Peziza sanguinea—Pers., "Tent. Disp. Meth.," p. 34; and "Myco. Eur.," p. 273; Fries, "Sys. Myco.," ii. p. 110; Nees, f. 271; Berk., "Mag. Zool. and Bot.," No. 11; Cooke, "Handbk.," No. 2076; Nyl., "Pez. Fenn.," p. 51. *Tapesia sanguinea*—Fckl., "Symb. Myco.," p. 303; Pat., p. 37, f. 91. *Patellaria sanguinea*—Karst., "Myco. Fenn.," p. 232. *Phialea sanguinea*—Gill., "Champ.," p. 112.

Exs.—Rabh., "Herb. Myco.," ed. ii. 642; and "Fung. Eur.," nov. ed., 226; Karst., "Fung. Fenn.," 148; Fckl., "F. Rh.," 1187.

On wood, fir, etc. November.

Cups 200 to 400μ broad (Nyl.); sporidia 8 × 3μ. (Fckl.).

Name—*Sanguis*, blood; blood-colour.
Beeston, Nottinghamshire. Shifnal, Salop!

(β) *Sporidia septate.*

8. *Tapesia fusca.* (Pers.)

Subiculum formed of densely woven, brown filaments, at times widely diffused, at other times hardly visible; cups scattered or gregarious, concave, brown, then plane, cinereous, mouth often paler; hymenium pallid-white, cinereous, or brownish; externally glabrous; asci clavate; sporidia 8, fusiform or oblong-fusiform, simple or 2-guttulate, becoming pseudo-septate, 8—16 × 2—3μ. *Peziza fusca*—Pers., "Obs.," i. p. 29; "Syn. Fung.," p. 657; "Myco. Eur.," i. p. 272; Fries, "Sys. Myco.," ii. p. 109; Grev., t. 192; "Eng. Flo.," v. p. 200 (in part); Cooke, "Handbk.," No. 2074; Nyl., "Pez. Fenn.," p. 50; Karst., "Pez. et Ascob.," p. 26. *Tapesia fusca*—Fckl., "Symb. Myco.," p. 302. *Mollisia fusca*—Karst., "Myco. Fenn.," p. 207. *Phialea fusca*—Gill., "Champ.," p. 113.

Exs.—Fckl., "F. Rh.," 1593; Phil., "Elv. Brit.," 77 Rhem, "Asco.," 153; Cooke, "Fung. Brit.," ed. ii. 556.

On wood. Spring and autumn.

Cups about ½ a line wide.

Name—*Fuscus*, brown, with a grey tinge.

Near Shrewsbury! Hereford! Very common.

9. *Tapesia Johnstoni.* (Berk.)

Sessile; cups globose or subturbinate, at length open and rufous, with a satiny lustre, attached beneath to a broad, black-brown, grumous subiculum.

Peziza Johnstoni—Berk., "Ann. Nat. Hist.," No. 313.

On fallen branches.

"Forming a uniform stratum on decayed sticks. Cups half a line broad, at first brown and pulverulent, at length rufous, rather thin, with a satiny lustre, subturbinate, with the margin permanently inflected, at first quite closed; subiculum granulated, grumous, obscurely floccose" (M. J. B.).

I have examined the original specimen, but can find no fruit. In general appearance it greatly resembles *P. Rosæ*.

Name—After Dr. Johnstone.

Berwick! N.B.

GENUS XI.—DESMAZIERELLA. Libert (amended).

Receptacle orbicular; hymenium disc-shaped, distinct, hairy with the rigid, bristle-like paraphyses; asci cylindrical; sporidia hyaline, elliptic. Epiphytal. (Plate VIII. fig. 51.)

Only one species known.

Name—After J. B. H. J. Desmazières.

1. *Desmazierella acicola*. Lib.

Cups scattered, sessile, turbinate, then plane; externally black, and clothed with a black byssoid tomentum; margin ciliated with long, bristle-like hairs; hymenium dark brown, pilose with the projecting paraphyses; flesh pale cinereous; asci cylindrical; sporidia 8, elliptic, 2-guttulate, $15 \times 8\mu$; paraphyses adherent in bundles, separated at the summits, which are black and pointed, exceeding the asci.

Desmazierella acicola—Lib., "Ann. Sc. Nat.," 1829, p. 82, with figure; "Grevillea," iii. p. 126, t. 42, f. 3.

Exs.—Lib., "Crypt. Ard.," 24; Phil., "Elv. Brit.," 45; Winter, "Fungi Eur.," 2211; Rehm, "Asco.," 705.

On dead leaves of *Pinus sylvestris*.

Cups about $2\frac{1}{2}$ lines broad. This appears at first as a minute, hairy *Chætomium*-like body, nearly black, afterwards expanding into a sublentiform disc. The brown hairs of the hymenium, being prolongations of the paraphyses, give this plant a striking character.

Name—*Acus*, a needle, *colo*, to inhabit; on pine-needles.

Wrekin, and Acton Burnell, Salop! Trefriw, North Wales! Aberdeen! (J. W. H. Trail).

Genus XII.—Pirottæa. Saccardo.

Cup superficial, or between erumpent and superficial, sessile, scutellate, nearly carbonaceous, black, clothed with short rigid bristles; asci 8-spored; sporidia oblong, continuous, hyaline. (Plate VIII. fig. 52.)

The habit of *Pyrenopeziæ*, but setulose (Sacc. in "Mich.," i. p. 424.

Name—After R. Pirotta.

Only one British species.

Pirottæa vectis. (B. and Br.)

Cups scattered, sessile, subglobose, then hemispherical; externally dark brown or nearly black, clothed with short, rigid, brown, bristle-like hairs; hymenium concave, pallid-cinereous; asci cylindraceo-clavate; sporidia 8, elongate-fusiform, curved, or vermiform, 1 to 3-septate, 25 × 4μ; paraphyses slenderly filiform. (Plate VIII. fig. 52.)

Peziza vectis—B. and Br., "Ann. Nat. Hist.," No. 957 Cooke, "Handbk.," No. 2063.

On dead stems of *Centaurea nigra.*

Cups 300μ broad. The short, rigid, nearly black hairs are chiefly on the margin, and are intermixed with brown polygonal granules.

Name—*Vectis*, the name of the Isle of Wight.

Ryde! (Rev. A. Bloxam).

Order III.—ASCOBOLEÆ. Boud.

Receptacle sessile, plane or convex, fleshy or subgelatinous; asci broad, never cylindrical, easily emergent, rendering the disc papillate by their prominent summits. (Plate IX. figs. 53–58.)

Named from the typical genus.

For the most part growing on old dung of animals in shady places; sometimes on earth or decaying vegetable matter.

The soft, fleshy, subgelatinous texture; the papillate hymenium, arising from the protruding asci, which are always broadly clavate; and the growth of nearly all species on the dung of animals, are ready characters by which to distinguish the plants of this order from *Peziza*. They rarely exceed 2 lines in breadth, the majority being much less.

ARRANGEMENT OF THE GENERA.

A. Sporidia having a coloured epispore.
- I. *Boudiera.*
- II. *Ascobolus.*
- III. *Saccobolus.*

B. Sporidia hyaline.
- IV. *Thecotheus.*
- V. *Ryparobius.*
- VI. *Ascophanus.*

KEY TO THE GENERA.

A. Sporidia coloured, usually purple.
- Sporidia globose .. .. *Boudiera.*
- Sporidia elliptic.
  - Sporidia free in ascus .. .. .. *Ascobolus.*
  - Sporidia inclosed in a common membrane within the ascus .. .. *Saccobolus.*

B. Sporidia hyaline.
- Sporidia not more than 8 in ascus (except *sexdecimsporus*) .. .. *Ascophanus.*
- Sporidia more than 8 in ascus.
  - Asci very large, much exserted .. .. *Thecotheus.*
  - Asci small, but broad .. .. .. *Ryparobius.*

SECTION A.—SPORIDIA COLOURED.

GENUS I.—BOUDIERA. Cooke in "Grevillea," vi. p. 76.

Immarginate, obicular, discoid, plane or convex, fleshy; hymenium papillate; asci clavate or clavate-cylindrical, ejected; sporidia globose; paraphyses distinct. (Plate IX. fig. 53.)

Name—After E. Boudier.

Boudiera areolata. Cooke and Phil.

Cups dark brown, orbicular, convex; asci clavate-cylindrical; sporidia 8, globose, deeply areolate, hyaline, brownish, 30μ; paraphyses stout, septate, clavate, and brown at the apices. (Plate IX. fig. 53.)

Boudiera areolata—Cooke and Phil., "Grevillea," vi: p. 76.

On moist ground on the margin of a lake. May.

Receptacles about 1 to 1½ line broad.

Name—*Areolæ*, little beds in a garden; from the depressions on the sporidia.

Llyn Gwernon, North Wales !

Genus II.—Ascobolus. Pers.

Sessile, disc plane or convex, papillate from the projecting asci; sporidia 8, elliptic, coloured, free in the ascus. (Plate IX. fig. 54.)

Name—*ασκός*, leather bag, wine-skin, and *βόλος*, a projection; from the projecting asci.

Distinguished from *Boudiera* by the elliptic sporidia, and from *Saccobolus* by the sporidia being free in the ascus, *i.e.* not inclosed in a common membrane.

Arrangement of the Species.

A.	Exterior of the cup smooth	species 1–4
B.	Exterior of cup furfuraceous or granulated	„ 5–9
C.	Exterior of cup pilose	„ 10, 11

Key to the Species.

	Exterior smooth	1
	Exterior rough	2
	Exterior pilose, pale ochre	*brunneus.*
	Exterior clothed with hyaline hairs, yellowish-green	*immersus.*
1.	Turbinate; exterior yellowish-green	*denudatus.*
	Subcylindrical; exterior yellowish-green, shining..	*æruginеus.*
	Flattish; exterior dull purple; margin laciniate ..	*vinosus.*
	Oblong-globose, then pyriform; exterior white, orange, or vinous-brown	*glaber.*
2.	Globose or hemispherical; exterior pale yellowish-green: on pigeon-dung	*viridulus.*
	Flattish; exterior umber-brown: on charcoal ..	*atro-fuscus.*
	Globose to hemispherical; exterior greenish-yellow: on cow-dung	*furfuraceus.*
	Flattened; exterior dark, dingy, yellowish-green: on clay ground	*viridis.*
	Globose, then flattened; exterior greenish-yellow: on grouse-dung	*crenulatus.*

A. EXTERIOR SMOOTH.

1. *Ascobolus denudatus.* Fries.

Gregarious, yellowish-green, smooth, turbinate, substipitate; hymenium plane; asci clavate; sporidia 8, elliptic, violet, at length brown; epispore reticulated, 17 × 8μ; paraphyses rather stout, clavate, forked, or with irregular processes at the summits.

Ascobolus denudatus—Fries, "Sys. Myco.," ii. p. 162; Cooke, "Jour. Bot." (1864), f. 2; Crouan, "Flo. Fin.," p. 57; Cooke, "Handbk.," No. 2196; B. and Br., "Ann. Nat. Hist.," No. 1083, t. 16, f. 24; Boud., "Ascob.," p. 26, t. 3, f. 3; Fckl., "Symb. Myco.," p. 287; Gill., "Champ.," p. 139.

Exs.—Fckl., "F. Rh.," 1849.

On old fir-poles; on the ground, attached to decayed leaves, etc. Autumn.

Cups about 1 line broad.

Name—*Denudatus*, made naked.

Marlborough Forest; Stopham, Sussex! (Mr. C. H. Spencer Perceval). Norton Camp, Craven Arms, Salop! Ercall Hill, Salop! Leigh Downs, near Bristol! (Mr. C. Bucknall).

2. *Ascobolus ærugineus.* Fries.

Sessile, gregarious, at first globose or subcylindrical, smooth, somewhat shining, translucent, from yellowish-green approaching olive when old, but not purple; hymenium plane, marginate, becoming nigro-punctate; asci narrowly clavate; sporidia 8, elliptic, violet or purplish-violet, at length brown, rugose, rugæ anastomosing, sometimes smooth, 15—17 × 8μ; paraphyses filiform, septate, hyaline, involved in sulphur-green gelatine.

Ascobolus ærugineus—Fries, "Obs.," ii. p. 310; "Sys. Myco.," ii. p. 165; Cooke, "Jour. Bot.," 1864; Boud., "Ascob.," p. 32, t. 7, f. 12; Gill., "Champ.," p. 146. *Ascobolus marginatus*—Schum., "Sæl.," ii. p. 437.

On horse-dung. August.

Cups about $\frac{1}{4}$ to $\frac{1}{2}$ a line broad; flesh olive; disc becomes black when dry.

Name—*Ærugo*, verdigris; from the colour.

3. *Ascobolus vinosus.* Berk.

Sessile, at first globose, then depressed, smooth, dull purple; margin laciniate; hymenium plane or convex, livid-purple; asci broadly clavate; sporidia 8, elliptic, rugose, rugæ anastomosing, at first colourless, then purple, at length brown, 23 × 13μ; paraphyses filiform, septate, scarcely coloured, enveloped in livid gelatine.

Ascobolus vinosus—Berk., "Eng. Flo.," v. p. 209; "Outl.," p. 374; Cooke, "Jour. Bot.," 1864; B. and Br., "Ann. Nat. Hist.," No. 1083,* t. 16, f. 25; Boud., "Ascob.," p. 31, t. 6, f. xi.; Cooke, "Handbk.," No. 2201; Gill., "Champ.," p. 145.

Exs.—Berk., No. 159; Fckl., "F. Rh.," 1852; Phil., "Elv. Brit.," No. 95.

On rabbit-dung in woods. Autumn.

Cups about $\frac{1}{2}$ to 1 line broad. The pseudo-parenchyma consists of dark purple-brown cells.

Name—*Vinum*, wine; colour of wine.

Common and generally distributed.

Haughmond Hill, and Attingham, near Shrewsbury! Ercall Hill, Salop!

4. *Ascobolus glaber.* Pers.

Sessile, minute, crowded, rarely scattered, glabrous, shining, subgelatinous, oblong-globose, then pyriform; base immersed, appearing hemispherical, plane or convex, varying in colour from white or orange to vinous-brown; asci broadly cylindraceo-clavate; sporidia 8, elliptic, clear violet, rugose, rugæ anastomosing, 25 × 13μ; paraphyses filiform.

Ascobolus glaber—Pers., "Obs.," i. p. 34, t. 4, f. 7; "Syn. Fung.," p. 667; "Myco. Eur.," i. p. 340; Bivona, "Man.," iv. p. 27, t. vi. f. 4; A. and S., p. 348; Fries, "Sys. Myco.," ii. p. 164; Cheval., "Flo. Par.," i. p. 383; Mérat., "Flo. Par.," i. p. 254; Berk., "Eng. Flo.," v. p. 209; "Outl.,"

p. 374; Cooke, "Jour. Bot.," 1864, f. 4; B. and Br., "Ann. Nat. Hist.," 1085*, t. 16, f. 27; Crouan, "Flo. Finn.," p. 57; Nyl., "Pez. Fenn.," p. 83; Karst., "Myco. Fenn.," p. 78; Boud., "Ascob.," p. 33, t. 7, f. 13–15; Fckl., "Symb. Myco.," p. 287; Cooke, "Handbk.," No. 2203; Gill., "Champ.," p. 145. *Ascobolus albidus*—Crouan, "Ann. Sc. Nat." (1858), t. 13, f. 1–6; "Flo. Fin.," p. 57.

Exs.—Karst., "Fung. Fenn.," 542.

On cow-dung, horse-dung, and rabbit-dung. Autumn.

Cups about ¼ to ½ a line broad; they are decidedly pyriform when removed from the matrix. The convex disc is covered with black papillæ, which are the summits of the asci, containing the dark sporidia.

Monsieur Boudier has three forms, distinguished by their colour—

1. Altogether white or whitish (*Asc. albidus*—Crouan *l. c.*).
2. Pale fulvous; disc darker (*Asc. glaber*—Pers.).
3. Fulvous; disc purple-brown.

Name—*Glaber*, smooth.

Northamptonshire (Rev. M. J. Berkeley). Batheaston (Mr. C. E. Broome). Shelly Oak, near Birmingham! (Mr. W. B. Grove). Ford, near Shrewsbury!

B. EXTERIOR FURFURACEOUS OR GRANULATED.

5. *Ascobolus viridis*. Curr.

Sessile, plane or very slightly concave, of a dark, dingy, yellowish-green colour; externally very furfuraceous, almost tomentose; asci clavate; sporidia 8, elliptic, acuminate, rugose-striate, amethyst-purple, 32 × 13μ; paraphyses rather stout, generally clavate or subfusiform at the summits, enveloped in a pale greenish mucus. (Plate IX. fig. 54.)

Ascobolus viridis—Curr. in "Linn. Trans.," xxiv. p. 154, 1863; Cooke, "Jour. Bot.," 1864; Boud., "Ann. Sc. Nat.," 1869, vol. x. t. 5, f. 4; B. and Br., "Ann. Nat. Hist.," No. 1081; Cooke, "Handbk.," No. 2197; Gill., "Champ.," p. 140.

Exs.—Phil., "Elv. Brit.," 196.
On damp clay ground in woods. Autumn.
Cups 2 to 3 lines broad.
Name—*Viridis*, green.
Hanham, near Bristol (Mr. C. E. Broome). Leigh Woods, Clifton (Mr. C. E. Broome). Poynton Springs, Salop!

6. *Ascobolus furfuraceus.* Pers.

Sessile, globose, then expanded; externally greenish-yellow, furfuraceous; hymenium slightly concave, then plane, at length convex, same colour, when old growing blackish-brown; margin furfuraceous, denticulate, or submembranaceous, friable; asci broadly clavate; sporidia 8, elliptic, epispore rugose-striate, rugæ anastomosing, purple, growing brown, 20—22 × 10μ; paraphyses filiform, septate, enveloped in sulphur-yellow gelatine.

Ascobolus furfuraceus—Pers., "Tent. Disp. Meth.," p. 25; "Obs.," i. p. 33, t. 4, f. 3-6; "Syn. Fung.," p. 676; "Myco. Eur.," i. p. 340; A. and S., p. 348; Schum., "Saell.," ii. p. 436; Rebent., p. 388; Bernhard, "Manip.," iv. t. 9, f. 5; Fries, "Sys. Myco.," ii. p. 163; Grev., "Sc. Crypt. Flo.," vi. p. 307; Cheval., "Flo. En. Par.," i. p. 303; Merat., "Flo. En. Par.," i. 254; Kromb., t. v. f. 45, 48; Schw., "Syn.," p. 178; Wallr., "Crypt. Flo.," f. 515; Cœmans, "Not. Ascob. Belg.," 1862, p. 13; "Eng. Flo.," v. p. 209; Berk., "Outl.," p. 374; De Not., "Disc.," p. 6; Curr., "Linn. Trans.," xxiv., t. xxv., f. 9; Cooke, "Jour. Bot.," May, 1864, f. 1; Kickx., "Flo. Crypt. Flan.," i. p. 479; Crouan, "Flo. Finn.," p. 57; Nyl., "Pez. Fenn.," p. 82; Karst., "Myco. Fenn.," p. 76; Cooke, "Handbk.," No. 2200; Fckl., "Symb. Myco.," p. 286; Gill., "Champ.," p. 144, c. i. *Peziza stercoraria* —Bull., t. 376, 538, f. 4; Sow., t. 18, 389, f. 3-6. *P. fusca*—Bolt., t. 109, f. 2.

Exs.—Rav., exs. vi. No. 81; Fckl., "F. Rh.," No. 1132; Desm., "Crypt. Fr.," ed. i. No. 1315, ed. ii. No. 715; Karst., "Fung. Fenn.," 170; Phil., "Elv. Brit.," 46;

Cooke, "Fung. Brit.," ii. No. 189; Rehm, "Asco.," No. 1; Rav., "Fung. Am.," 312, 632.

On old cow-dung. Spring and autumn.

Cups from $\frac{1}{2}$ to $\frac{3}{4}$ of a line broad. When young and moist the cups are pale yellowish green; when old the disc is black, and the prominent margin dirty-white and granulose.

Name—*Furfur*, bran; branny or scurfy

Universally distributed.

7. *Ascobolus viridulus.* Phil. and Plow.

Scattered, sessile, hemispherical, concave, then expanded, submarginate, thick, pale yellowish-green, coarsely granulated; asci clavate; sporidia 8, elliptic, violet, becoming brown, rugose-striate, 13 × 6μ; paraphyses rather stout, distinctly septate, clavate at the apices, enveloped in a pale green mucus.

Ascobolus viridulus—Phil. and Plow. in "Grevillea," viii. p. 103.

On rejectamenta of birds (pigeons ?). Spring.

Cups $\frac{1}{2}$ to $\frac{3}{4}$ of a line broad. This has much the outward character of *A. furfuraceus* in a young state, but the sporidia are very much smaller.

Name—*Viridis*, green; slightly green.

Haughmond Hill, near Shrewsbury!

8. *Ascobolus atro-fuscus.* Phil. and Plow.

Sessile, crowded or scattered, blackish-brown, concave, then plane; margin crenulate; externally furfuraceous; asci clavate; sporidia 8, broadly elliptic, obtuse, hyaline, then purple, at length brown, epispore granulated or verrucose, 22 × 13μ; paraphyses linear, occasionally branched.

Ascobolus atro-fuscus—Phil. and Plow. in "Grevillea," ii. p. 186, t. 24, f. 1. *Asc. viridis*—Boud., "Ann. Sc. Nat.," 1869, vol. x. t. 5, f. 4; Gill., "Champ.," p. 140. *Asc. carbonicola*—Boud., "Soc. Bot. de Fr.," October, 1877.

Exs.—Phil., "Elv. Brit.," No. 47.

On a charcoal bed. July.

Cups 1 to 3 lines broad. The verrucose epispore distinguishes this from its congeners.

Name—*Ater*, black, *fuscus*, brown.

Wrekin, Shropshire!

9. *Ascobolus crenulatus.* Karst.

Gregarious, sessile, at first globose, then flattened, nearly plane, greenish-yellow, furfuraceous; margin crenulate; asci clavate; sporidia 8, elliptic, striate, violate, becoming brownish, 12—16 × 6—8μ; paraphyses slender.

Ascobolus crenulatus—Karst., "Fung. Fenn.," exs. 763; "Pez. et Ascob.," p. 202; "Myco. Fenn.," p. 77; "Grevillea," iv. p. 112.

Exs.—Karst., "Fung. Fenn.," No. 763.

On grouse-dung.

"Cups about $\frac{1}{2}$ to $\frac{3}{4}$ of a line broad; disc of the Rannoch specimens vinous when old, retaining the greenish colour at the base of the cups" (M. C. Cooke).

Name—*Crena*, a notch; slightly crenate.

Rannoch, N.B. (Dr. Buchanan White).

C. EXTERIOR PILOSE.

10. *Ascobolus brunneus.* Cooke.

Cups sessile, minute, globose, then depressed, sessile; externally pilose, pale ochre; asci broadly clavate, short; sporidia 8, elliptic, at first hyaline and granular, at length brown, 25—35 × 15μ; paraphyses filiform.

Ascobolus brunneus—Cooke in "Fung. Brit.," 1867; "Hedw.," vi. p. 154; "Handbk.," No. 2205; not *Asc. brunneus*—Boud., "Ann. Sc. Nat.," 1869.

Exs.—Cooke, "Fung. Brit.," 286.

On cow-dung.

Name—*Brunneus*, deep brown.

Shere, Surrey (Dr. M. C. Cooke).

11. *Ascobolus immersus.* Pers.

Immersed or slightly erumpent, very minute, subcylindrical or pyriform, clear yellowish-green; coated

externally with very minute, simple, or fasciculate, hyaline hairs; hymenium shining, a little undulating; asci large, broadly clavate, very much exserted; sporidia 8, elliptic or oblong-elliptic, bright violet, becoming brown, faintly and distantly rimose or smooth, each enclosed in a wide hyaline membrane filled with a colourless liquid, 50—70 × 30—48μ; paraphyses filiform.

Ascobolus immersus—Pers., "Syn. Fung.," 677; "Myco. Eur.," i. p. 341; Nees, "Sys.," f. 297; Fries, "Sys. Myco.," ii. p. 164; Cheval., "Flo. En. Par.," i. p. 303; Duby, "Bot. Gall.," ii. p. 739; Cœmans, "Not. Ascob. Belg.," p. 12, No. 1; Kickx., "Flo. Flan.," i. p. 478; Nyl., "Pez. Fenn.," p. 84; Karst., "Mon. Pez.," p. 204; Karst., "Myco. Fenn.," p. 80; B. and Br., "Ann. Nat. Hist.," No. 1089, t. 17, f. 33; Boud., "Ascob.," p. 36, t. 8, fig. xvii.; Fckl., "Symb. Myco.," p. 286; Cooke, "Handbk.," No. 2204; Gill., "Champ.," p. 144. *Asc. macrosporus*—Crouan, "Ann. Sc. Nat.," 1857, t. 4 B, f. 5–8; Cooke, "Jour. Bot.," 1864, f. 7. *Asc. gigasporus*—De Not., "Disc," p. 6.

Exs.—Cooke, "Fung. Brit.," ed. ii. No. 397.

On cow, sheep, horse, and goose dung. Autumn.

About 300 to 800μ broad. Easily recognized by the large sporidia—larger than in any other species.

Name—*Immergo*, to plunge; immersed.

Batheaston (Mr. C. E. Broome). Longmynd, Salop, on goose-dung!

Genus III.—Saccobolus. Boud.

Receptacle fleshy, sessile; externally glabrous, shining; hymenium plane, then convex, bright, covered with the small exserted asci, resembling black shining granules; asci short, broad, almost quadrate at the apices, attenuated at the base, and then nearly wedge-shaped, the dehiscent operculum often triangular, not umbonate; sporidia 8; epispore waxy, smooth, very sparsely, minutely, and often transversely rimose, inclosed in a

common membrane, when mature variously aggregated at the extremity of the asci. (Plate IX. fig. 55.)

Small species growing on dung. Easily distinguished from the preceding by the short and large asci, which are less prominent, and only at maturity in the form of projecting round black points; by the sporidia being enclosed in a common membrane; and by the shorter paraphyses.

Name—*σάκκος*, sac, *βάλλω*, a projection.

ARRANGEMENT OF THE SPECIES.

A. Exterior of cup smooth	species 1–5
B. Exterior pubescent	„ 6

KEY TO THE SPECIES.

	Exterior of cup golden-yellow	*Kerverni.*
	Exterior of cup fuliginous	*obscurus.*
	Exterior of cup violet..	*violaceus.*
	Exterior of cup pallid or whitish	1
1.	Cups plane, pallid, then vinous	*depauperatus.*
	Cups globose, white, then cinereous	*neglectus.*
	Cups hemispherical, white, and pubescent.. ..	*cæsariatus.*

A. EXTERIOR OF CUP SMOOTH.

1. *Saccobolus Kerverni.* (Crouan.)

Very small, scattered or crowded, golden yellow or amber, glabrous, shining, sessile, hemispherical, sometimes subcylindrical; hymenium flat or convex; asci wide, incurved; sporidia 8, elliptic, at first white, then rosy, and finally of a beautiful violet, smooth, or rarely minutely and irregularly rimose, disposed at the summit of the ascus in an oblong mass, enclosed in a hyaline membrane, 20—23 × 10μ; paraphyses branched, septate, a little thickened at the summits, enveloped in a golden or yellowish-green gelatine.

Ascobolus Kerverni—Crouan in "Ann. Sc. Nat.," 1858, t. x. pl. 13, B, f. 7–10; "Flo. Finn.," p. 57; Cooke, "Journ. Bot.," 1864, f. 8; Fckl., "Symb. Myco.," p. 287; B. and Br., "Ann. Sc. Nat.," No. 1090, t. 17, f. 34; Karst., "Myco. Fenn.," p. 78; Cooke, "Handbk.," No. 2206; Gill., "Champ.," p. 141, c. i. *Ascobolus glaber*—Cœmans,

"Not. Ascob. Belg.," 1862, p. 14; Kickx., "Crypt. Flan.," i. p. 478. *Saccobolus Kerverni*—Boud., "Ascob.," p. 39, t. 8, f. 18.

Exs.—Fckl., exs. No. 1836; Cooke, "Fung. Brit.," ed. ii. 399.

On old cow-dung. October.

Cups 400 to 600μ broad.

Name—After Capt. D. Kervern.

Bathford! (Mr. C. E. Broome). Forden, Montgomeryshire.

2. *Saccobolus obscurus.* (Cooke.)

Subgregarious, sometimes densely crowded, fuliginous or dark brown; hymenium convex, rather paler; asci clavate; sporidia elliptic, rough, becoming violet, then brown, 12—14 × 7μ, enclosed in a common hyaline membrane; paraphyses filiform, simple.

Ascobolus (*Saccobolus*) *obscurus*—Cooke in "Grevillea," iv. p. 112.

On old sacking.

Cups 200 to 900μ broad.

Name—*Obscurus*, of a dark colour.

Forden, Montgomeryshire! (Dr. M. C. Cooke

3. *Saccobolus neglectus.* Boud.

Very minute, at first globose, glabrous, scarcely shining, white or becoming cinereous, or finally cinereus-purple, paler at the base; hymenium often fulvous, at certain times, therefore, covered with the exserted asci and appearing black; asci minute, broad, attenuated at the base, hyaline, operculum plane; sporidia 8, elliptic, sub-acuminate, smooth, roseate, passing into cinereous-violet and black, 15—19 × 6—8μ, enclosed in a common hyaline membrane; paraphyses simple or branched, scarcely thickened at the apices, hyaline, septate, involved in a scarcely visible gelatine.

Saccobolus neglectus—Boud., "Ascob.," p. 41, t. 9, f. 20; Phil. and Plow., "Grevillea," 10, p. 69; Gill., "Champ.," p. 141.

On rabbit-dung. Spring.

Cups 200 to 500μ broad, convex, when dry brown.

Name—*Neglectus*, neglected.

King's Lynn! (Mr. C. B. Plowright). Leigh Woods, near Bristol! (Mr. C. Bucknall).

4. *Saccobolus violasceus.* Boud.

Scattered or crowded, minute, sessile, glabrous, shining, hemispherical, then more or less expanded, violet or cinereous-violet; hymenium scarcely paler, convex, rarely undulated; asci broad, attenuated at the base; operculum plane; sporidia 8, elliptic, sub-acute, often navicular, at first hyaline, then rosy, at length approaching a blue-violet or violet-black, smooth, 15 × 9μ, enclosed in a common hyaline membrane; paraphyses septate, apices pyriform, becoming violet-colour. (Plate IX. fig. 55.)

Saccobolus violasceus—Boud., "Ascob.," p. 41, t. 8, f. 19. *Ascobolus violasceus*—Phil. and Plow., "Grevillea," iii. p. 126; Gill., "Champ.," p. 141, c. i.

Exs.—Phil., "Elv. Brit.," No. 48.

On cow-dung. Autumn.

Cups $\frac{1}{2}$ to 1 line broad, subgelatinous.

Name—*Violasceus*, of a violet-colour.

King's Lynn! (Mr. C. B. Plowright). Wrekin, Salop!

5. *Saccobolus depauperatus.* (B. and Br.)

Cups minute, plane, pallid, then vinous; asci short, broad, oblong, base abruptly narrowed to a short stem; sporidia 8, obtusely fusiform, lurid violet, even, 10—12 × 6·5μ; enclosed in a common hyaline sac; paraphyses filiform, septate, slightly incrassated at the summit.

Ascobolus depauperatus—B. and Br., "Ann. Nat. Hist.," No. 1084, t. 14, f. 6; Cooke, "Handbk.," No. 2207.

On dung of sheep, horse, and deer.

"Cups minute, not exceeding $\frac{1}{100}$ of an inch in diameter, yellowish when young, becoming vinous, but sometimes when old losing their purplish tint" (B. and Br.).

Name—*Depaupero*, to impoverish.

Spye Park, Bathford, Hanham, etc. (Mr. C. E. Broome).

B. EXTERIOR PUBESCENT.

6. *Saccobolus cæsariatus.* Renny.

Minute, hemispherical, white, clothed with colourless, septate, slender, flexuous hairs; hymenium convex, papillate from the exserted asci; asci broadly clavate; sporidia elliptic, purple, smooth, enclosed in a common hyaline sac; paraphyses filiform, rather stout, simple, or branched.

Saccobolus cæsariatus—Renny in litt.

This is an exceedingly beautiful species, very minute, but, unfortunately, no dimensions are given, nor yet the habitat. It resembles a pure white, sessile *Lachnella.*

Name—*Cæsariatus*, covered with hairs.

SECTION B.—SPORIDIA HYALINE.

GENUS IV.—THECOTHEUS. Boud in "Ascob."

Receptacle waxy, sessile; hymenium erumpent, immarginate, opaque, subpruinose, at first plane, then convex, rough with crystalline points, which are the much exserted asci; paraphyses longer, very slender, numerous, involved in gelatine; asci large, elongated, but broad, polysporus in the species noted, sub-umbonate at the apex, when mature exserted about half their length; sporidia hyaline, with a conspicuous central nucleus, free, larger epispore smooth, the young ones very commonly surrounded singly by mucilage (Boudier, *l. c.*). (Plate IX. fig. 56.)

Name—$\theta\acute{\eta}\kappa\eta$, thecus, $\acute{\omega}\theta\acute{\epsilon}\omega$, I push; from the projecting asci.

One species only.

1. *Thecotheus Pelletieri.* (Crouan.)

Scattered or crowded, at first conical, then cylindrical, at length rotund-applanate, grey or cinereous-lilac;

covered externally with an excessively subtle white pruina; hymenium opaque, often paler; asci elongated, very large, broad, opening at the apex by a subumbonate operculum; sporidia 32, hyaline, larger than in *Ryparobius*, elliptic, subacuminate, the young ones filled with conspicuous minute drops, and surrounded singly with gelatine, the mature ones naked, with one central nucleus, 27 × 14μ; paraphyses slender, septate, hyaline, branched from the base, enveloped in hyaline gelatine. (Plate IX. fig. 56.)

Ascobolus Pelletieri—Crouan, "Ann. Sc. Nat.," 1857, vol. vii. p. 173, t. iv. A. f. 1–4; "Flo. Finn.," p. 52; Cœmans, "Not. Ascob. Belg.," p. 15; "Bull. Soc. Belg.," i. p. 88; Kickx., "Crypt. Flan.," i. p. 477; Pat., p. 74, f. 172. *Thecotheus Pelletieri*—Boud., "Ascob.," p. 46, t. 9, f. 22; Phil. and Plow., "Grevillea," x. p. 69.

On horse-dung. It is also found on dung of cows, sheep, and dogs.

Cups ½ to 1 line broad. Easily recognized by the large asci and numerous sporidia.

Name—After Captain Pelletier.

Grown under glass, Bristol! (Mr. C. Bucknall). Scarborough! (Mr. Massee).

Genus V.—Ryparobius. Boud.

Very minute, hardly visible to the naked eye, waxy, marginate, sessile; hymenium plane; punctate from the prominent asci, when dry margin inflexed, rotundate; asci minute, but proportionately very broad, often ovate, scarcely attenuated at the base; always polysporus, opening by a large convex operculum, scarcely rising above the mature disc; sporidia very minute, hyaline, very numerous, never granulose within, nucleus hardly visible, when mature aggregated into an oblong globule, but easily separable (Boudier, *l. c.*). (Plate IX. fig. 57.)

Distinguished from the preceding genus by the smaller

size of the receptacle and the colourless and numerous sporidia.

Name—ῥυπαρός, dirty, βίος, life; living on dung.

ARRANGEMENT OF THE SPECIES.

A. Exterior of cup smooth.
  (*a*) Margin not ciliated .. .. .. species 1–2
  (*b*) Margin ciliated .. .. .. „ 3–5
B. Exterior hairy .. .. „ 6–8

KEY TO THE SPECIES.

	Exterior fulvous	*Cookei.*
	Exterior white	1
1.	Sporidia elliptic	2
	Sporidia fusiform	3
	Margin fringed; sporidia 16–24	*parvisporus.*
2.	Margin ciliated; sporidia 128	*subhirtus.*
	Margin not ciliated	*dubius.*
3.	Exterior hairy; sporidia 64	*Woolhopensis.*
	Hairs on margin only	4
	Hairs short, irregular; sporidia 64–96	*Leveilleanus.*
4.	Hairs short, rough; sporidia 32	*Crouani.*
	Hairs soft; sporidia 64; cups globose, then applanate	*argenteus.*

A. EXTERIOR OF CUP SMOOTH.

(*a*) *Margin not ciliated.*

1. *Ryparobius Cookei.* (Crouan.)

Very much crowded, rarely scattered, extremely minute, hemispherical, glabrous, fulvous, paler at the base; margin irregularly paler; hymenium plane, whitish or pallid-fulvous, papillate from the exserted asci; sporidia 64, oblong-elliptic, hyaline, scarcely acute, 8—10 × 4—5μ; paraphyses scarce, hyaline, septate, scarcely thickened at the apices. (Plate IX. fig. 57.)

Ascobolus Cookei—Crouan, "Flo. Finn.," p. 56, fig. 3; Cooke, "Grevillea," i. p. 132. *Ryparobius Cookei*—Boud., "Ascob.," p. 48, t. 9, f. 24. *Ascobolus myriadeus*—Karst., "Fung. Fenn.," exs. No. 552. *Ascobolus polysporus*—Auers. in "Hedwig.," 1868, p. 51. *Ascobolus crustaceus*—Fckl., "Symb. Myco.," p. 288; Karst., "Mon. Pez.," p. 208; *Pezizula crustacea*—Karst., "Myco. Fenn.," p. 81.

Exs.—Fckl., "F. Rh.," No. 1858; Karst., "Fung. Fenn.," No. 552.

On cow and rabbit dung.

Cups 100 to 200μ broad.

Name—After Dr. M. C. Cooke.

Near Hereford (Mr. J. Renny). Near London (Dr. M. C. Cooke). Near Bath (Mr. C. E. Broome). Forres, N.B.! (Rev. Dr. Keith).

2. *Ryparobius dubius.* Boud.

Scattered, excessively minute, often immersed, rotundate, pallid-grey or fulvous; hymenium convex, pellucid, immarginate; asci oblong or oblong-ovate, hyaline, obtuse at the base, or slightly attenuated; sporidia 128(?), elliptic, hyaline, subacute; paraphyses none or very rare, short, hyaline, septate.

Ryparobius dubius—Boud., "Ascob.," t. 10, f. 26; B. and Br., "Ann. Sc. Nat.," No. 1392; Cooke, "Grevillea," ii. p. 163; Bucknall, "Fung. Bristol," pt. 2, p. 349.

On horse and rabbit dung.

This is the smallest and least visible species of the genus, being difficult to discover even with the aid of a lens. It is distinguished from its congeners by its numerous sporidia, its being generally paler in colour, immersed, always scattered, and having asci not narrowed at the base into a stem.

Name—*Dubius*, doubtful.

Leigh Downs, near Bristol! (Mr. C. Bucknall). Bathford (Mr. C. E. Broome).

(*b*) *Margin ciliated.*

3. *Ryparobius Crouani.* (Renny.)

Very minute, at first clear white, then whitish, fragile, sessile, hemispherical, glabrous, exterior of cup formed of a single series of cells; margin ciliated with a single series of short, rough, subacuminate hairs; asci broadly clavate; sporidia 32, oblong-fusiform, obtuse at the ends, hyaline, smooth; paraphyses not seen.

Ascozonus Crouani—Renny in "Trans. Woolhope

Club," 1873, p. 130, t. 3, f. 6–10; and "Jour. Bot.," 1874, p. 356, t. 154, f. 6–10.

On rabbit-dung. Autumn.

Cups $\frac{1}{150}$, rarely $\frac{1}{100}$, of an inch broad, formed of a single layer of subcubical cells, with a single row of sharp, pointed hairs, often roughened on their sides about $\frac{1}{6}$ to $\frac{1}{8}$ of the whole height; disc plane, granulate; asci narrower than usual; sporidia normally 32, oblongo-fusiform. To be distinguished from *A. cuniculariis* by the shorter and tapering rough cilia, as well as by the thinness and transparency of the walls (Renny).

Name—After M.M. Crouan *frères*.

Hereford (Mr. James Renny).

4. *Ryparobius argenteus.* B. and Br.

Very minute, at first globose, then applanate, silvery-white, ciliated with soft hairs; asci short, broad, sporidiferous; cysts elliptic, seated towards the apex; sporidia 64, fusiform, hyaline, smooth, 17 × 7·6μ; paraphyses filiform, furcate, tips slightly enlarged.

Ryparobius argenteus—B. and Br. in "Ann. Nat. Hist.," No. 1394; "Grevillea," ii. 163. *Ascozonus cuniculariius*—Renny, "Trans. Woolhope Club," 1873, p. 129, t. i, f. 1–4; and "Jour. Bot.," 1874, p. 355, t. 155, f. 1–4.

On rabbit-dung, for the most part attached to filaments of *Mucor*.

Cups 100μ across, scarcely visible to the naked eye; asci opening with a little lid, which splits vertically. Comes near to *R. felinus* (Boud.), but has soft hairs, and is of a pure white (B. and Br.). But for the colourless sporidia, this, as well as Nos. 6 and 7, should belong to *Saccobolus*, on account of the "sporidiferous cysts."

Name—*Argentum*, silver, having a silvery appearance.

Near Hereford (Mr. Renny).

5. *Ryparobius Leveilleanus.* (Renny.)

Very minute, shortly stipitate, silvery white; stem formed of rounded, prominent cells; body of cup of

smaller, much-flattened cells; margin ciliated with a single row of short irregular hairs; hymenium papillate; asci very broad, tapering below, with an umbonate operculum; sporidia 64 to 96, oblong-fusiform, obtuse at the ends, hyaline, smooth; paraphyses not seen.

Ascozonus Leveilleanus—Renny in "Trans. Woolhope Club," 1873, p. 130, f. 1–5. *A. Leveillei*—Renny, "Jour. Bot.," 1874, p. 356, t. 154, f. 1–5.

On rabbit-dung. Winter.

Cups $\frac{1}{80}$ to $\frac{1}{120}$ of an inch wide (Renny).

Name—After J. H. Lèveillé.

Hereford (Mr. J. Renny).

B. EXTERIOR HAIRY.

6. *Ryparobius Woolhopinsis.* Renny.

Minute, scattered, at first pure white, then dingy; cups with a thick stem-like base, which is tuberculate, covered with close-set hairs, which fringe the margin, at length expanding, the hairs disappearing with age; substance of base vesicular; asci broadly clavate, sporiferous, cysts seated towards the apices; sporidia 64, broadly fusiform, hyaline, smooth, 17—18 × 5μ; paraphyses filiform, stout, simple.

Ryparobius Woolhopensis (Renny)—B. and Br. in "Ann. Nat. Hist.," No. 1395; "Grevillea," ii. p. 163. *Ascozonus Woolhopensis*—Renny, "Trans. Woolhope Club," 1873, p. 130; and "Jour. Bot.," 1874, p. 356, t. 153.

On bird-dung, mixed with filaments of *Mucor*, and mostly borne by them.

Cups ½ a line (·041) wide and high.

Name—After the Woolhope Field Club.

Hereford (Mr. James Renny).

7. *Ryparobius subhirtus.* (Renny.)

Minute, sessile, hemispherical, pure white, nearly transparent, dotted with short unequal hairs, which are mostly connate in pairs or threes; margin ciliated; hymenium flat, coarsely papillate; asci very wide, oblong,

narrowed at the base, somewhat abruptly, to a point; sporidia about 128 (not less), elliptic, hyaline, smooth, collected at length into an ovoid mass in the upper part of the ascus; paraphyses not seen.

Ascozonus subhirtus—Renny in "Trans. Woolhope Club," 1873, p. 131, t. 2, f. 4–7; and "Jour. Bot.," 1874, p. 357, t. 155, f. 4–7.

On rabbit-dung. Autumn.

Name—*Sub*, somewhat, *hirtus*, hairy.

Hereford (Mr. James Renny).

8. *Ryparobius parvisporus.* (Renny.)

Very minute, fragile, somewhat more fleshy than other species, white and brilliant at first, then duller, with a faintly vinous tinge; substance formed of bladdery polygonal cells, unequal in size, and often projecting in hair-like threads; margin unevenly fringed with somewhat roughened subulate hairs, often in a partly double row; hymenium at first flat, then filled with the prominent, broadly clavate asci; sporidia 16 to 24, elliptic, hyaline, smooth; paraphyses filiform, stout, septate.

Ascozonus parvisporus—Renny in "Trans. Woolhope Club," 1873, p. 131, t. 3, f. 1–5; and "Jour. Bot.," 1874, p. 356, t. 156, f. 1–5.

On rabbit-dung. Autumn.

Name—*Parvus*, small, *sporus*, a spore.

Hereford (Mr. James Renny).

GENUS VI.—ASCOPHANUS. Boud.

Receptacle sessile, pilose, pruinose, or glabrous; hymenium plane or convex, rarely marginate; asci broadly clavate, or rarely oblong-ovate; hyaline or very faintly coloured, opening by a conspicuous, rotund, often recurved operculum; sporidia 8 or 16, elliptic or oblong-elliptic, hyaline or at the most very faintly tinted, when young singly surrounded with gelatine, smooth or rarely very minutely punctate. (Plate IX. fig. 58.)

Distinguished from the preceding genus by the smaller number of sporidia.

Chiefly inhabiting dung, but occasionally found on vegetable and animal substances.

Name—*ασκός*, ascus, *φαίνω*, to appear.

ARRANGEMENT OF THE SPECIES.

A. Exterior glabrous.
  (*a*) Sporidia globose .. .. .. species 1
  (*b*) Sporidia elliptic.
    (*α*) Eight in ascus .. .. .. „ 2 12
    (*β*) Sixteen in ascus . .. „ 13
B. Exterior rugose, granulate .. .. „ 14
C. Exterior hairy .. .. „ 15

KEY TO THE SPECIES.

	Brown or fulvous; margin black	*minutissimus.*
	Brown; margin same colour, inflexed	*subfuscus.*
	Red	1
	Yellow	2
	Cinereous	*cinereous.*
	White	3
1.	Orange-red	*aurora.*
1.	Flesh-colour or rosy-flesh	*carneus.*
1.	Brick-red	*testaceus.*
2.	Pallid-yellow or whitish, rugose	*consociatus.*
2.	Pale yellowish-ochre, translucent, smooth	*granuliformis.*
2.	Pallid-ochraceous; paraphyses often curved. ..	*ochraceus.*
2.	Yellow testaceus, pilose	*pilosus.*
3.	Silvery-white; paraphyses clavate	*argenteus.*
3.	Milk-white; paraphyses filiform	*lacteus.*
3.	Dirty-white or yellowish; paraphyses globose ..	*microsporus.*
3.	White, 16 sporidia in ascus	*sexdecimsporus.*
3.	White, spores globose	*Boudieri.*

A. EXTERIOR GLABROUS.

(*a*) *Sporidia globose.*

1. *Ascophanus Boudieri.* (Renny.)

Minute, sessile, hemispherical, glabrous, clear white; hymenium plane, papillate; asci broadly cylindraceo-clavate; sporidia 8, globose, asperate, hyaline; paraphyses filiform, stout.

Ascobolus Boudieri—Renny in litt. cum ico.

On rabbit-dung.

The above description is drawn up from a beautiful

drawing sent me by Mr. Renny, but I regret to say no indication of the magnifying power is given, so that I am unable to supply the measurements of the sporidia.

Name—After E. Boudier.

Hereford (Mr. James Renny).

(*b*) *Sporidia elliptic.*

2. *Ascophanus subfuscus.* Boud.

Crowded, rarely scattered, very minute, hemispherical; externally glabrous, brown, paler at the base, when dry black-brown, with an irregular inflexed margin; hymenium plane, pale or pale fulvous; asci short, broadly clavate; sporidia 8, oblong-elliptic, subfusiform, hyaline, $10 \times 5\mu$; paraphyses broadly clavate and brown at the apices.

Ascophanus subfuscus—Boud., "Ascob.," p. 52, t. 10, fig. xxviii.; "Scott. Nat.," i. (new series) 87.

Exs.—Cooke, "Fung. Brit.," ed. ii. No. 657.

On cow-dung.

Receptacles, according to Boudier, $\frac{1}{10}$ to $\frac{1}{5}$ mm. (100 to 200μ) broad.

The specimens referred to the above species agree in size and external characters, but not in habitat; nor, indeed, can it be said of the sporidia that they are subfusiform.

Shrewsbury!

3. *Ascophanus minutissimus.* Boud.

Very minute, hardly visible under a lens, always scattered, hemispherical or applanate, brown or fulvous; hymenium the same colour; margin black; asci rather broad, small, hyaline, attenuated at the base; sporidia 8, elliptic, subfusiform, hyaline, smooth, $7\frac{1}{2} \times 4\mu$; paraphyses simple, pyriform at the apices, yellow-green, hyaline at the base.

Ascophanus minutissimus—Boud., "Ascob.," p. 53, t. 10, f. 29.

On horse-dung.

About 100 to 200μ broad.
Name—*Minutus*, minute; very minute.
Near Birmingham! (Mr. W. B. Grove).

4. *Ascophanus argenteus*. (Curr.)

Gregarious, exceedingly minute, barely visible to the naked eye, subpyriform, of a silvery-white colour, oblong-ovate, narrowed to a point at the base; sporidia 8, elliptic, colourless, $12 \times 7{\cdot}6\mu$; paraphyses clavate at the apices.

Ascobolus argenteus—Curr.; Cooke, "Jour. Bot.," May, 1864, f. 6; B. and Br., "Ann. Nat. Hist.," No. 1088, t. 17, f. 32; Cooke, "Handbk.," No. 2210; Gill., "Champ.," p. 142. *Ascophanus argenteus*—Boud., "Ann. Sc. Nat." (1869), vol. 10, t. 11, f. 32; "Ascob.," p. 55.

On cow-dung.
Scarcely visible to the naked eye.
Name—*Argentum*, silver; of silvery appearance.
Eltham (Mr. F. Currey).

5. *Ascophanus lacteus*. (Cooke and Phil.)

Scattered, at first obconical, then expanded, slightly concave, at length convex, milk-white, glabrous; asci clavate; sporidia 8, generally biseriate, elliptic, hyaline, smooth, $10 \times 5\mu$; paraphyses filiform.

Ascobolus (*Ascophanus*) *lacteus*—Cooke and Phil. in "Grevillea," v. p. 119.

Exs.—Cooke, "Fung. Brit.," ed. ii. 560.

On cow-dung.

Cups $\frac{1}{2}$ to $\frac{3}{4}$ of a line broad. In external appearance it certainly resembles an *Helotium*, but here the resemblance ceases. In size as well as sporidia it differs from the pale forms of *Ascoph. ochraceus*, and from *Ascoph. argenteus* in the slightly smaller sporidia, the narrower asci, and the filiform paraphyses.

Name—*Lac*, milk; milk-white.
Shrewsbury!

6. *Ascophanus microsporus.* (B. and Br.)

Very minute, sessile, dirty white or yellowish brown, depressed; asci broadly clavate, often furnished at the base with a little narrow, oblique stem; sporidia 8, elliptic, at length violet, smooth, 7·6 × 3·5μ; paraphyses globose at the apices, filled with a greenish-yellow endochrome.

Ascobolus microsporus—B. and Br., "Ann. Nat. Hist.," No. 1087, t. 16, f. 28; Cooke, "Handbk.," No. 2209. *Asc. Cœmansii*—Boud., "Ann. Sc. Nat.," 1869; and "Ascob.," p. 54, t. 10, f. 30.

Exs.—Rabh., "Fung. Eur.," No. 977.

On dung of cows and sheep.

About ¼ to ½ a line broad.

"This differs materially from *Ascoph. granuliformis* in the size of the fruit, which is proportionally narrower; the colour also is different" (B. and Br., *l. c.*).

Name—*μικρός*, minute, *σπόρος*, a seed.

Batheaston (Messrs. Berkeley and Broome). Hanham, near Bristol! (Mr. Broome). Forden (Rev. J. E. Vize). Shrewsbury!

7. *Ascophanus granuliformis.* (Crouan.)

Minute, sessile, globose or hemispherical, pale yellow-ochre, translucent, opaque in the centre, smooth; asci small, very wide, oblong-ovate, narrowed at the base; sporidia 8, hyaline, smooth, elliptic, 10—13 × 7·6μ; paraphyses hyaline, septate, simple or branched, pear-shaped at the apices.

Ascobolus granuliformis—Crouan, "Ann. Sc. Nat." (1858), vol. 10, tab. 13, f. 27–35; "Flo. Fin.," p. 56; Cooke, "Jour. Bot.," 1864, f. 5; "Handbk.," No. 2208. *Ascophanus granuliformis*—Boud., "Ascob.," p. 55, t. 10, f. 31; "Ann. Sc. Nat.," 1869, vol. 10; Pat., p. 74, f. 173.

Exs.—Rabh., "Fung. Eur.," nov. ed., No. 782.

On cow-dung.

About ¼ to ½ a line broad.

Name—*Granum*, a grain, *forma*, form; like a small grain.

Batheaston (Mr. C. E. Broome). Shrewsbury!

8. *Ascophanus aurora.* (Crouan.)

Scattered, minute, orange-red, shining, flattened; hymenium plane or convex, when old covered with crystalline papillæ; asci clavate, attenuated at the base; sporidia elliptic, hyaline, smooth, 10 × 6·5μ; paraphyses filiform, slender, simple, bifid, or trifid, curved, filled with orange granules.

Peziza aurora—Crouan, "Ann. Sc. Nat.," ser. 5, vol. 10, t. 11, f. 36. *Ascophanus aurora*—Boud., "Ascob.," p. 58, t. 11, f. 36; Cooke, "Grevillea," i. p. 132.

On cow-dung. February.

Cups $\frac{1}{4}$ to $\frac{3}{4}$ of a line broad.

Name—*Aurora*, the morning; from the ruddy colour.

Eltham, Kent (Messrs. Berkeley and Broome).

9. *Ascophanus cinereus.* (Crouan.)

Scattered or scarcely crowded, at first globose, sub-urceolate, and marginate, then expanded, hymenium becoming plane or convex; externally pruinose, cinereous or cinereous-fulvous; asci broadly clavate, attenuated at the base; sporidia 8, oblong-elliptic, hyaline, epispore rough with granules, 20 × 9μ; paraphyses filiform, slender, simple, septate.

Ascobolus cinereus—Crouan, "Ann. Soc. Nat.," vol. 10, p. 194, t. 13 D, f. 17–20; and "Flo. Fin.," p. 56; Cœmans, "Bull. Soc. Bot. Belg.," i. p. 88, No. 6; and "Spicilege," p. 15, No. 6; Kickx., "Flo. Flan.," i. p. 477; B. and Br., "Ann. Nat. Hist.," No. 1085, t. 17, f. 30; Cooke, "Handbk.," No. 2212. *Ascophanus cinereus*—Boud., "Ascob.," p. 59, t. 11, f. 37.

About 200 to 400μ broad.

Name—*Cinis*, ashes; ash-colour.

Weybridge, Surrey! (in the herbarium of the late Mr. F. Currey).

10. *Ascophanus carneus.* (Pers.)

Scattered or rarely crowded, minute, sessile, flesh-colour or rosy flesh-colour, glabrous, at first globose, then flattened; hymenium convex, papillate, immarginate; asci broadly clavate, attenuated below, hyaline, or almost rosy; sporidia 8, elliptic, smooth, or sometimes minutely granular, hyaline, each when young surrounded by gelatine, 18 × 10μ; paraphyses stout, clavate at the apices, septate.

Ascobolus carneus—Pers., "Syn. Fung.," p. 676; Fries, "Sys. Myco.," ii. p. 165; Berk., "Outl.," p. 374; Karst., "Pez. et Ascob.," p. 44; and "Mon. Pez.," p. 120; Nyl., "Pez. Fenn.," p. 86; Cooke, "Jour. Bot.," 1864; and "Handbk.," No. 2213; B. and Br., "Ann. Nat. Hist.," No. 1085*, t. 17, f. 29; Gill., "Champ.," p. 143. *Ascophanus carneus*—Boud., "Ann. Sc. Nat.," 1869, x. t. 12, f. 38; and "Ascob.," p. 60, c. i.; Pat., p. 172, f. 379.

Exs.—Fckl., "F. Rh.," No. 1857; Rav., "Fung. Am.," 176; Ellis, "N. A. Fungi," 853.

On cow-dung, rotting cloth, and hempen cord. Autumn.

About $\frac{1}{2}$ to $\frac{3}{4}$ of a line broad. Generally seated on a white mycelium.

Name—*Caro*, flesh; flesh-colour.

Forden, Montgomeryshire, on nettle-stems! Forres, N.B., on cow-dung! (Rev. Dr. Keith). Lynn, on cloth! (Mr. C. B. Plowright).

Var. β. *cuniculi.* Boud., "Ascob.," t. 12, f. 39.

Dirty orange or orange flesh-colour, $\frac{1}{2}$ a line broad, scattered or crowded. Paraphyses always hyaline.

Phil. and Plow., "Grevillea," ii. p. 187; Pat., p. 172, f. 380.

Exs.—Cooke, "Fung. Brit.," ed. ii. No. 398.

On rabbit-dung. December.

Name—*Cuniculus*, a rabbit's burrow; from the habitat.

Near Shrewsbury!

Var. γ. *saccharinus.* (Berk. and Curr.)

Cups ¾ to 1 line broad. "Reddish pink or salmon-colour, when dry paler towards the margin; plant attached at the base by white downy threads; hymenium somewhat glistening, looking as if sprinkled with minute particles of brown sugar" (Berk. and Curr.).

Ascobolus saccharinus (Berk. and Curr.)—Berk., "Outl.," p. 374; Cooke, "Jour. Bot.," 1864, f. 10; and "Handbk.," No. 2214; B. and Br., "Ann. Nat. Hist.," No. 1091*, t. 17, f. 36. *Ascophanus saccharinus*—Boud., "Ann. Sc. Nat.," 1869, vol. x. t. 12, f. 40; and "Ascob.," p. 61, c. i.

On old leather, and also on rag.

M. Boudier could discover no anatomical character by which to distinguish this from *A. carneus;* nor can I, except that the sporidia are a little longer in proportion to their width.

Name—*Saccharum,* sugar; resembling grains of sugar.

Chislehurst, Kent, and Paul's Cray Common (Mr. F. Currey).

11. *Ascophanus testaceus.* (Moug.)

Gregarious, waxy, sessile, unequal, smooth, depressed, convex, brick-red; asci broadly clavate; sporidia 8, elliptic, epispore granular, 18—20 × 9—11μ; paraphyses stout, septate, simple, often clavate at the apices, filled with granular protoplasm. (Plate IX. fig. 58.)

Peziza testacea, Moug.—Fries, "Elench.," ii. p. 11. *Helotium testaceum*—Berk., "Outl.," p. 372; and "Ann. Nat. Hist.," No. 576. *Ascobolus testaceus*—Berk., "Ann. Nat. Hist.," No. 1082*, t. 14, f. 5; Cooke, "Handbk.," No. 2216. *Ascobolus difformis*—Nyl., "Pez. Fenn.," p. 85. *Ascophanus difformis*—Boud., "Ascob.," p. 62.

Exs.—Rav. No. 2139.

On old sacking and rabbit-dung. Rather common.

Cups about 1 line broad.

Name—*Testa,* a brick; brick-colour.

King's Cliffe (Rev. M. J. Berkeley). Bathford (Mr.

C. E. Broome). Twycross (Rev. A. Bloxam). Forden, Montgomeryshire! (Rev. J. E. Vize). Lynn! (Mr. C. B. Plowright).

12. *Ascophanus ochraceus.* (Crouan.)

Minute, pallid-ochraceous or ochraceous; hymenium convex, minutely papillate; asci somewhat fusiform or clavate; sporidia 8, elliptic or oblong-elliptic, smooth, hyaline, 16 × 9μ; paraphyses simple or branched, septate, slightly thickened above, often curved.

Ascobolus ochraceus—Crouan, "Flo. Fin.," p. 57; Cooke, "Grevillea," v. p. 62; Gill., "Champ.," p. 143. *Ascophanus ochraceus*—Boud., "Ascob.," p. 57, t. 11, f. 34.

Exs.—Cooke, "Fung. Brit.," ed. ii. 559.

On old cow-dung. Rare.

About ½ a line broad, fleshy, glabrous.

Name—*Ochra*, ochre; the colour of ochre.

Shrewsbury!

13. *Ascophanus sexdecimsporus.* (Crouan.)

Scattered, minute, sessile, hemispherical, plane or slightly convex, glabrous, white, then greyish-white, at length clear yellowish-white; asci oblong, broad, narrowed at the base; sporidia 16, elliptic, hyaline, smooth, 11 × 6μ; paraphyses colourless, simple or branched below, straight or curved at the apex, where they are a little thickened.

Ascobolus sexdecimsporus—Crouan, "Ann. Sc. Nat.," 1858, vol. x. p. 195, t. 13 E, fig. 21–26; "Flo. Fin.," p. 56; Cooke, "Jour. Bot.," 1864, fig. 9; B. and Br. "Ann. Nat. Hist.," No. 1091, t. 17, f. 35; Cooke, "Handbk.," No. 2211. *Ascophanus sexdecimsporus*—Boud., "Ann. Sc. Nat.," 1869, vol. x. t. 11, f. 35; "Ascob.," p. 57.

In marshes, on droppings of cows and horses. October.

Cups ½ to 1 line broad.

Name—*Sexdecim*, sixteen, *σπόρος*, a seed.

Hanham, near Bristol (Mr. C. E. Broome). Herefordshire! (Mr. Renny). Church Stretton, Salop!

14. *Ascophanus consociatus.* (B. and Br.)

Cups gregarious, subhemispherical; externally rugose, granulated, pallid-yellow or whitish; asci broadly clavate, short; sporidia 8, biseriate, broadly fusiform, granular within, 10 × 6μ; paraphyses filiform.

Ascobolus consociatus—B. and Br., "Ann. Nat. Hist.," No. 1491, t. 2, f. 7; "Grevillea," iii. p. 123.

On the remains of *Sphæria cupulifera*, on wood.

Cups 100 to 150μ broad. The sporidia are very faintly tinted with yellow, and coarsely granular within.

Name—*Consocio*, to associate; gregarious.

Langridge (Mr. C. E. Broome).

15. *Ascophanus pilosus.* (Fries.)

Minute, sessile, yellow, testaceous-yellow or tawny-orange; externally pilose, with long pallid or yellowish, nonseptate hairs, incrassated near the base; hymenium papillate, margin naked; asci clavate; sporidia 8, hyaline, oblong-elliptic, smooth, 20 × 10μ; paraphyses slender, septate, simple or branched, hyaline, but filled with orange-yellow granules.

Ascobolus pilosus—Fries, "Sys. Myco.," ii. p. 164; "Summa Veg. Scan.," p. 358; Crouan, "Flo. Fin.," p. 55; Nyl., "Pez. Fenn.," p. 86; Cooke, "Grevillea," iv. p. 112. *Peziza equina*, Muell, var. *pilosa*—Karst., "Myco. Fenn.," p. 73. *Ascophanus pilosus*—Boud., "Ascob.," p. 64, t. xii., 42–44; Pat., p. 211, f. 487.

On grouse-dung.

Cups 100μ broad. Referred to *A. pilosus* as a variety, but the specimens were more minute than usual, scarcely visible to the naked eye (M. C. Cooke).

Name—*Pilosus*, hairy.

Rannoch, N.B. (Dr. Buchanan White).

Var. *ciliatus.* (B. and Br.)

Sessile, subhemispherical, smooth, orange; hymenium plane; margin swollen, white, not ciliated; furnished

with white nonseptate hairs near the base; asci broadly clavate; sporidia elliptic, smooth, hyaline, 22 × 10μ; paraphyses filiform, filled with orange granules.

Ascobolus ciliatus—Berk., "Eng. Flo.," v. p. 374; "Ann. Nat. Hist.," No. 1083, t. 14, f. 7; Cooke, "Jour. Bot.," 1864; "Handbk.," No. 2215; Schmidt, "Myco. Hefte," i. p. 90 (?); Fries, "Sys. Myco.," ii. p. 164 (?). *Ascophanus ciliatus*—Boud., "Ascob.," p. 63.

Exs.—Cooke, "Fung. Brit.," No. 658, ed. ii. No. 190; Phil., "Elv. Brit.," 97.

On cow-dung. Autumn.

Cups $\frac{1}{4}$ to $\frac{1}{2}$ a line broad. The pseudo parenchyma consists of square or oblong cells as figured by B. and Br., "Ann. Nat. Hist.," t. 14, f. 7, and Boudier in "Ascob.," t. 12, f. xliv. 1. The hairs are without septa, colourless, and ventricose near the base, or sometimes near the middle.

To my mind it is doubtful whether we have the plant described by Schmidt, which Fries says is ciliated on the margin. There are two forms of *A. pilosus*, one with colourless hairs, the other with coloured hairs; the former appears to have been referred to *A. ciliatus*, the latter to *A. pilosus*.

Name—*Cilium*, the hair of the eyelash; ciliated.

Order IV.—BULGARIEÆ.

Receptacle sessile, rarely substipitate, more rarely stipitate; exipulum gelatinous, subgelatinous, or horny; sporidia elliptic or oblong, rarely filiform. (Plate X. figs. 59–63.)

The consistence of the receptacle in this order is a marked feature, the nearest approach to which is found in *Ascoboleæ*; but none of the species grow on dung, as is commonly the case in that order. *Vibrissea* is placed here with some misgiving, the receptacle being scarcely gelatinous.

Name—From the typical genus.

ARRANGEMENT OF THE GENERA.

I. *Bulgaria.*
II. *Vibrissea.*
III. *Stamnaria.*
IV. *Ombrophila.*
V. *Calloria.*

KEY TO THE GENERA.

	Sporidia brown	*Bulgaria.*
	Sporidia filiform, long	*Vibrissea.*
...	Sporidia not filiform, or, if so, short	1
1.	Receptacle urceolate	*Stamnaria.*
	Receptacle moderately large, exceeding 1 line broad; sporidia large	*Ombrophila.*
	Receptacle minute, rarely reaching 1 line broad; sporidia very minute	*Calloria.*

GENUS I.—BULGARIA. Fries.

Receptacle substipitate or sessile, glabrous; mature cups plane or slightly convex; excipulum gelatinous or fleshy gelatinous; asci narrowly clavate; sporidia brown. (Plate X. fig. 59.)

Inhabiting wood.

The dark-coloured hymenium and brown sporidia distinguish this from the other genera.

Name—From *bulga*, a leathern bag.

KEY TO THE SPECIES.

Receptacle turbinate	*inquinans.*
Receptacle sessile	*pulla.*

1. *Bulgaria inquinans.* Fries.

Cæspitose, turbinate, firm, gelatinous; externally rugulose, furfuraceous, umber; hymenium becoming plane, black; asci narrowly clavate; sporidia 8 or 4, elliptic, unequal-sided, brown, 10—14 × 5—6μ; paraphyses filiform, slender. (Plate X. fig. 59.)

Peziza inquinans—Pers., "Syn. Fung.," p. 631; and "Myco. Eur.," p. 318. *Peziza nigra*—Bull., "Champ.," p. 238, t. 460, f. 2. *Peziza polymorpha*—With., vol. 4, p. 312; Sow., t. 428; Purt., "Mid. Flo.," vols. 2. and 3, No. 1046; Lightf., f. ii. p. 1003; "Flo. Dan.," t. 464; Hoffm., "Crypt.," ii. t. 6, f. 2. *Peziza brunnea*—Batsch, "El.," f. 50. *Bulgaria inquinans*—Fries, "Sys. Myco.," ii. p. 167; "Eng. Flo.," v. p. 209; Berk., "Outl.," 375,

t. 22, f. 7; Tul., "Ann. Sc. Nat.," ser. 3, pp. 160–164, t. 15, f. 1–7; and "Select. Fung. Carp.," iii. t. 17, f. 9, 10; Cooke, "Handbk.," No. 2217; Fckl., "Symb. Myco.," 286; Gill., "Champ.," p. 146, c. i.

Exs.—Moug. and Nest., 197; Desm., "Crypt. Fr.," ed. i. 551, ed. ii. 569; Karst., "Fung. Fenn.," 462; Rabh., "Herb. Myco.," ed. ii. 599; Cooke, "Fung. Brit.," 324; Rav., "Fung. Carol.," v. 43; Fckl., 1136; Rehm, "Asco.," 74; Phil., "Elv. Brit.," 49; Winter, "Fungi Eur.," 2107; Ellis, "N. A. Fungi," 448.

On dead trunks of trees.

Receptacles ½ to 1½ inches broad, single or in fasciculate heaps. "Tough, elastic, gelatinous, dark brown or chocolate, almost black, wrinkled, and rough externally; hymenium sometimes lacunose; stem in general black, almost obsolete, sometimes fasciculate, and confluent" (Berk.).

Name—*Bulga*, a leathern bag.

Clifton! (Mr. C. Bucknall). Sutton Coldfield! (Mr. W. B. Grove). Carlisle! (Dr. Carlyle). Hawthornden, Edinburgh! Heywood Forest, Herefordshire! Haughmond Hill, Salop! Chetwynd Park, Salop! Church Stretton, Salop!

2. *Bulgaria pulla.* Fries.

Subgelatinous, sessile, glabrous, when young plane, quite entire, olivaceous, afterwards convex and quite black; disc pruinose, pulverulent; asci cylindrical; sporidia 8, uniseriate, elliptic, brown, guttulate, 10—16 × 7·5—8μ; paraphyses thickened upwards, adherent, and brown.

Bulgaria pulla—Fries, "Summa Veg. Scan.," p. 358; Bucknall, "Fung. Bristol," No. 1075. *Patellaria pulla*—Fries, "Sys. Myco.," ii. p. 160.

On dead wood.

Cups ½ to 1 line broad. Gregarious, separate or in confluent series, black within; hymenium often pruinose from the scattered sporidia.

Blaize Castle Wood! (Mr. C. Bucknall).

Genus II.—Vibrissea. Fries (amended

Aquatic fungi (except *rimarum*), bearing the exposed hymenium on a plane or cup-shaped membranaceous receptacle, stipitate or sessile, fleshy, firm, ejecting from the asci slender elongated sporidia, which often remain attached by their extremities to the surface of the hymenium, giving it a velvety appearance ("Trans. Linn. Soc.," ser. 2; "Botany," vol. 11, p. 5). (Plate X. figs. 60, 61.)

Name—*Vibro*, to shake; from the vibrating sporidia.

Arrangement of the Species.

A. Stipitate	.. ..	species 1–4
B. Sessile	.. ..	„ 5–7

Key to the Species.

A. STIPITATE.

	Hymenium grey	*microscopica.*
	Hymenium orange-vermilion; margin hispid ..	*Margarita.*
	Hymenium golden-yellow or blood-red	1
1.	Exterior glaucous; stem squamulose	*truncorum.*
	Exterior dark brown, granulose	*Fergussoni.*

B. SESSILE.

Hymenium pallid, ochraceous, or grey; externally bluish-black	*Guernisaci.*
Hymenium ochraceous-yellow; margin thin and distinct	*turbinata*
Hymenium pallid or straw-coloured; externally lurid	*leptospora.*

A. STIPITATE.

1. *Vibrissea truncorum.* (A. and S.)

Fasciculate, gregarious or scattered; hymenium convex, golden-yellow or blood-red, forming, with the membranaceous receptacle, an orbicular head; stem terete, glaucous, squamulose; asci cylindrical; sporidia 8, filiform, multiseptate, 250 × 1μ; paraphyses very slender, branched, slightly enlarged at the summits. (Plate X. fig. 60.)

Vibrissea truncorum (A. and S.)—Fries, "Sys. Myco.," 11, p. 31; "Summa Veg. Scan.," p. 360. *Leotia trun-*

corum—A. and S., p. 297, t. 3, f. 2; Schw., "Syn.," p. 88; Pers., "Myco. Eur.," p. 199. *Leotia clavus*—*id. op. cit.*, p. 200, t. xi. f. 9. *Vibrissea truncorum*—Wallr., "Flo. Germ.," vol. iv. p. 548; Kromb., 1, p. 76, t. v. f. 34–36; Corda, "Anl.," t. G., f. 66, 1, 2; Bail., t. 21; Bisch., "Krypt.," f. 3374; Nees von Esen. u. Hen., "Sys. der Pilzen," vol. 11, p. 67, t. 21; Rabh., "Krypt. Flo.," i. p. 339; Berk., "Eng. Flo.," vol. v. p. 186; "Crypt. Bot.," p. 284, f. 326; "Outl.," p. 361; Karst., "Myco. Fenn.," p. 26; Cooke, "Handbk.," No. 1955; f. 328; Steven., "Myco. Scot.," p. 298; Quelet, "Champ.," p. 379; Peek, xxv., "Report N. Y. Mus.," p. 98; Phil., "Trans. Linn. Soc.," ser. ii. vol. ii. p. 5, t. i. figs. 1–9; Gill., "Champ.," p. 28, c. i.; Pat., p. 40, f. 99.

Exs.—Moug. and Nest., No. 781; Phil., "Elv. Brit.," No. 4; Roumg., "Fung. Gal.," 536.

On decayed wood (alder, birch, pine, etc.) in sub-alpine streams. Spring.

The head is about 2 lines broad, at first plane, becoming convex, often slightly repand, umbilicate beneath; the stem, at first stuffed, becomes hollow, is 2 to 6 lines high, bluish-grey, with blackish squamules, or smooth, darker towards the base; the asci are very long, cylindrical, numerous; the sporidia very slenderly filiform, divided by numerous septa, narrower towards each extremity, 8 in each ascus; paraphyses numerous, branched, septate, enlarged and brownish at the summits. When removed from the water and exposed for a short time to the air, the sporidia shoot out from the hymenium with more or less violence, many of them remaining attached by one extremity to the hymenium, waving to and fro like floss silk, glistening in the light.

Name—*Truncus*, a trunk of a tree; from the habitat.

Capel Curig, North Wales! Scotland.

2. *Vibrissea Margarita.* White.

Simple; head orbicular, orange-vermilion; margin hispid; stem cylindrical, hirsute, with black, articulated

hairs; internally whitish cinereous; asci cylindrical; sporidia 8, filiform, multiseptate, 180 × 2μ; paraphyses filiform, branched near the apices, which are subclavate and brown.

Vibrissea Margarita—White, "Scott. Nat.," vol. ii. p. 218; B. and Br., "Ann. Nat. Hist.," No. 1477; Steven., "Myco. Scot.," p. 298; "Grevillea," vol. ii. p. 162; Phil., "Trans. Linn. Soc.," ser. 2, vol. ii. p. 6, t. i. f. 10–16.

On dead sticks of heather in a pool of water, at an altitude of 2200 feet. September and October.

The stems are simple, varying from 2 lines to ½ an inch in height, springing from complicated threads, and covered with black-jointed hairs or fibres; at the junction with the head the stem is less hairy and paler in colour, internally it is solid and greyish-white. The head is flattened orbicular (sometimes concave in the middle), and of a beautiful orange-vermilion in colour; the margin has a fringe of close appressed hairs of the same character as those on the stem; underneath the head is paler in colour at the junction with the stem. The species is readily distinguished from its ally, *V. truncorum*, by the hairy stems and differently coloured heads (Dr. Buchanan White, *l. c.*).

Name—After Mrs. Buchanan White.

Mòr Shròn, Braemar! (Dr. Buchanan White).

3. *Vibrissea Fergussoni.* (B. and Br.)

Stipes short, thickened upwards; cups plane, externally dark brown, granulose; hymenium plane or pulvinate, yellow; asci elongated; sporidia filiform, 220μ; summits of the paraphyses globose.

Patellaria Fergussoni—B. and Br., "Ann. Nat. Hist.," No. 1490, t. 11. fig. 6; "Grevillea," iii. p. 123. *Vibrissea Fergussoni*—Phil., "Trans. Linn. Soc.," ser. 2, vol. ii. p. 7.

On *Prunus Padus*.

Name—After the Rev. J. Fergusson.

New Pitsligo, N.B. (Rev. J. Fergusson).

4. *Vibrissea microscopica.* B. and Br.

Very minute, plane or cup-shaped; hymenium and receptacle grey; stipes short, slender, black; asci clavate; sporidia 8, filiform; paraphyses filiform numerous.

Vibrissea microscopica—B. and Br., "Ann. Nat. Hist.," No. 1618; "Grevillea," v. p. 59; Phil. in "Trans. Linn. Soc.," ser. 2, vol. ii. p. 7, t. i. f. 17–24.

On damp fir-wood.

Scarcely visible without a lens. Stem very short, black; head grey, leaving a cup-shaped depression when completely washed off; sporidia ejected, filiform (Berk. and Broome, *l. c.*).

The receptacle is 200μ broad; the whole plant 200μ high; sporidia 50—60 × 2μ.

Name—$\mu\iota\kappa\rho\acute{o}\varsigma$, small, $\sigma\kappa o\pi\acute{\epsilon}\omega$, to look; from its minuteness.

Rannoch, N.B.! (Dr. Buchanan White).

B. SESSILE.

5. *Vibrissea Guernisaci.* Crouan.

Minute, lentiform or turbinate, between fleshy and gelatinous; hymenium pallid, ochraceous or grey, convex; asci cylindrical, long; sporidia 8, filiform, hyaline, 270μ long; paraphyses slender, branched near the clavate summits. (Plate X. fig. 61.)

Vibrissea Guernisaci—Crouan, "Ann. Sc. Nat.," 1857, t. iv. f. 24–26; "Flo. Fin.," p. 46; Phil. and Plow., "Grevillea," iv. p. 120; Phil., "Trans. Linn. Soc.," ser. 2, vol. ii. p. 8, t. ii. f. 1–7; Gill., "Champ.," p. 204, c. i.; Pat., p. 168, f. 369.

Exs.—Phil., "Elv. Brit.," No. 143.

On dead submerged branches of *Salix* in water. May and June.

Cups ½ to 1½ lines broad. It first appears on the branches as a small greyish wart, with a somewhat paler point in the centre. In a more advanced state it assumes the form of a thick disc, similar to the apothecia of *Lecanora*. The hymenium is convex, soft in texture,

pallid bluish-yellow, margined by the excipulum, which is submembranaceous, and in section cup-shaped, bluish-black, adhering by the greater part of its base to the wood. The asci are very long and cylindrical, not as figured by M. Crouan, in "Ann. Sc. Nat." (*l. c.*). The paraphyses are septate, often branched, and clavate at the summits. The sporidia are 270 × 2μ, and when mature septate.

Name—After Vicomte de Guernisac.

Wrexham, Denbighshire! (Mr. B. Acton). Habberley and Berrington! near Shrewsbury.

6. *Vibrissea turbinata.* Phil.

Scattered, turbinate; hymenium plane or convex, ochraceous yellow, margined by the thin edge of the receptacle, which is bluish-grey, smooth; asci cylindrical; sporidia 8, filiform, 180 × 2μ; paraphyses slender, branched near the summits, which are slightly enlarged and brownish.

Vibrissea turbinata—Phil. in "Trans. Linn. Soc.," ser. 2, vol. ii. p. 8, t. ii. f. 14–18. *Helotium vibrissioides*—Pk. in litt.

On branches of ash in watercourse.

Cup ¼ to ½ a line broad.

Name—*Turbinatus*—shaped like a top.

Shrewsbury!

7. *Vibrissea leptospora.* (B. and Br.)

Hemispherical, then expanded, sessile; hymenium pallid or straw-coloured; externally lurid, from the scattered, black, adpressed flocci; margin crenulate; sporidia filiform; 200 to 230μ long, 2μ broad.

Peziza leptospora—B. and Br., "Ann. Nat. Hist.," No. 1166, t. iv. f. 30. *Vibrissea coronata*—Phil. in Herb. *Vibrissea leptospora*—Phil. in "Trans. Linn. Soc.," ser. 2, vol. ii. p. 8, t. 2, f. 19–23.

On decayed wood.

About ½ a line across; at first perfectly globose, often collapsed in the centre, but gradually opening and ex-

posing the soft, pallid, sometimes straw-coloured hymenium; asci oblong; sporidia very long and slender, filiform, flexuous, with a row of globose nuclei, at length repeatedly septate (B. and Br., *l. c.*).

Name—λεπτὸς, slender, σπόρος, a seed; from the shape of the sporidia.

Jedburgh!

Genus III.—Stamnaria. Fckl., "Symb. Myco.," 309.

Cups minute, cæspitose, rarely scattered, distinctly stipitate, horny, diaphanous, glabrous, shining, globose-urceolate, hollow; mouth narrowed, truncate, and paler; asci large, having 8 sporidia, which are in two rows, oblong, minutely guttulate, continuous, and hyaline.

1. *Stamnaria Persoonii.* (Moug.)

Cups subglobose or urceolate, glabrous, orange-red; margin paler, texture horny; stem very short; asci cylindraceo-clavate; sporidia 8, elongate-elliptic, guttulate, 17—19 × 4—6μ; paraphyses filiform, branched, slightly enlarged at the apices.

Peziza Persoonii—Moug. in Pers., "Myco. Eur.," i. p. 288, t. 12, f. 1; Fries, "Sys. Myco.," ii. p. 121; "Eng. Flo.," v. p. 201; Grev., t. 162; Cooke, "Handbk.," No. 2088. *Peziza Equiseti*—Fries in MS.; Gonn. and Rabh., iii. t. 5, f. 5. *Lycoperdon Equiseti*—Hoffm., "Crypt.," t. 5, f. 1. *Stamnaria Persoonii*—Fckl., "Symb. Myco.," p. 309. *Phialea Persoonii*—Gill., "Champ.," p. 106.

Exs.—Libert, No. 329; Rabh., "Fung. Eur.," 123; Fckl., "F. Rh.," 1184, 2409, and 2507.

On decaying *Equisetum*, in moist places. Spring and summer.

Cups 500 to 800μ broad; stem at times nearly absent, or very broad, equalling the breadth of the cup. The margin is often membranaceous, but entire, and paler than below.

The horny texture of this plant justifies its removal from the *Peziz*æ.

Duddington Loch, near Edinburgh (Dr. Greville). Park Loch, near Aberdeen! (Professor J. W. H. Trail).

GENUS IV.—OMBROPHILA. Fries, "Summa Veg. Scan.," p. 357.

Sessile or stipitate, glabrous, gelatinous; hymenium plane or convex, rarely concave; generally dark-coloured epiphytal. (Plate X. fig. 62.)

Spermogonia occur in some species.

Name—ὄμβροϛ, rain, φίλοϛ, loving.

ARRANGEMENT OF THE SPECIES.

A.	Sporidia elliptic	species 1, 2
B.	Sporidia fusiform or subfusiform ..	„ 3–5
C.	Sporidia cylindrical	„ 6

KEY TO THE SPECIES.

	Exterior fibrillose-striate	*rudis.*
	Exterior veined, flesh-red	1
	Exterior even	2
1.	Sporidia uniguttulate	*sarcoides.*
	Sporidia multiguttulate and larger	*purpurea.*
2.	Yellowish-brown; paraphyses enlarged at the summits	*brunnea.*
	Æruginous-green; paraphyses filiform, branched ..	*atro-virens.*
	Pallid or purplish; paraphyses unbranched ..	*clavus.*

A. SPORIDIA ELLIPTIC.

1. *Ombrophila rudis.* (Berk.)

Fasciculate, turbinate-stipitate or stipitate, subgelatinous; hymenium plane, here and there depressed, rugose, yellow-brown, somewhat vinous, externally finely fibrilloso-striate; stem often elongated, lacunose or striate; asci clavate, base slender; sporidia 8, elliptic, 7—10×3—4μ; paraphyses filiform, slender.

Peziza rudis—Berk. in "Proc. N. H. Soc. Berw.," p. 190; "Ann. Nat. Hist.," No. 574, t. 6, f. 13; Cooke, "Handbk.," No. 2077.

On shallow gravel and peat. June.

This plant is decidedly subgelatinous, and resembles some states of *O. sarcoides*, but has different sporidia. It is described when fresh as yellowish-brown, with vinous tint; stem often striate below, but externally very minutely fibroso-striate" (B. and Br.).

Name—*Rudis*, rude.

Berwick! (in Herb. Berk. Kew).

2. *Ombrophila brunnea.* Phil.

Crowded, sessile or substipitate, nearly hemispherical, then expanded, becoming flexuous, gelatinous, yellowish-brown, glabrous; hymenium darker than margin; asci cylindrical; sporidia 8, oblong-elliptic, biguttulate, replete with granular protoplasm, 16—20 × 5—8μ; paraphyses filiform, enlarged at the summits, adhering.

Ombrophila brunnea—Phil. in "Grevillea," viii. p. 103; "Scott. Nat.," i. (new ser.) 87.

On dead herbaceous stems in damp places.

Cups about 1½ to 5 lines broad.

Name—*Brunneus*, deep brown.

Forres, N.B.! (Rev. Dr. Keith).

B. SPORIDIA FUSIFORM OR SUBFUSIFORM.

3. *Ombrophila sarcoides.* (Jacq.)

Cæspitose, sessile or substipitate, firm, subgelatinous, fleshy red, veined below; hymenium plane, concave or urceolate and repand; asci cylindraceo-clavate; sporidia 8, oblong or oblong-fusiform, straight or unequal-sided, with a central gutta, 10—18 × 4—5μ; paraphyses filiform, slender, abundant, adherent.

Spermogonia form, polymorphous, soft, viscid, flesh-red; conidia subglobose or subelliptic; spermatia rod-like, straight or curved.

Lichen sarcoides—Jacq., "Misc. Austr.," ii. p. 378, t. 22. *Peziza sarcoides*—Pers., "Syn. Fung.," p. 633; A. and S., p. 305. *Bulgaria sarcoides*—Fries, "Sys. Myco.," ii. p. 168; "Eng. Flo.," v. p. 210; Berk., "Outl.," p. 375, t. 18, f. 6; Cooke, "Handbk.," No. 2218; "Fungi," p. 198;

Gill., "Champ.," p. 147, c i. *Helvella sarcoides*—Dicks., "Crypt.," i. p. 21; Bolt., t. 101, f. 2. *Sarcodea sarcoides* * *urnalis*—Karst., "Symb. Myco.," p. 232. *Coryne sarcoides*—Tul., "Select. Fung. Carp.," iii. p. 190, t. 17, f. 1–8; Fckl., "Symb. Myco.," p. 284. *Ombrophila sarcoides*—Karst., "Myco. Fenn.," p. 86. Spermogonia: *Tremella* (*coryne*) *sarcoides*—Fries, "Sys. Myco.," ii. p. 217; "Summa Veg. Scan.," p. 341; and "Epicr.," p. 589. *Tremella sarcoides*—With., p. 78. *Coryne sarcoides*—Bon., "Handb.," p. 149, t. 11, f. 233.

Exs.—Karst., "Fung. Fenn.," 452 (partly); Cooke, "Fung. Brit.," 482; Phil., "Elv. Brit.," 138; Roumg., "Fung. Gal.," 2767.

On trunks and branches of trees.

Name—σάρξ, flesh, εἶδος, likeness; flesh-like.

Common!

4. *Ombrophila purpurea.* (Fckl.)

Receptacle as in preceding, but larger and more robust; asci scarcely stipitate, cylindrical; sporidia biseriate, lanceolate, sometimes curved, multiguttulate, hyaline, 20 × 6μ; paraphyses filiform, not thickened at the tips.

Coryne purpurea—Fckl., "Symb. Myco.," p. 284. *Bulgaria purpurea* (Fckl.)—Cooke in "Grevillea," ii. p. 164.

Exs.—Fckl., "F. Rh.," No. 1135; Cooke, "Fung. Brit.," ed. ii. 658.

Sporidia 20μ (·0007 in.) long, whereas in *B. sarcoides* they are only half that length. The cups exceed 1 inch in diameter (Cooke).

The sporidia in the Attingham Park specimen are 24 × 7μ. This may be a distinct species.

Epping (Dr. M. C. Cooke). Attingham Park, Shrewsbury!

5. *Ombrophila clavus.* (A. and S.)

Crowded or scattered, between fleshy and gelatinous, somewhat firm, pallid or purplish, nearly obconic or

stipitate; hymenium plane or convex; stem thick or slender; asci cylindraceo-clavate; sporidia 8, oblong-elliptic, obtuse at the ends or pointed, unequal-sided, polari-guttulate, 10—15 × 4—5μ; paraphyses filiform. (Plate X. fig. 62.)

Peziza clavus—A. and S., p. 306, t. 11, f. 5; Fries, "Sys. Myco.," ii. p. 137; B. and Br., "Ann. Nat. Hist.," No. 575; Pat., p. 129, f. 290 (?). *Helotium clavus*—Gill., "Champ.," p. 153.

On leaves, twigs, etc., lying in swampy places. Autumn.

A most variable species both in size and shape, the stem at one time absent, at another elongated to twice the diameter of the disc; sometimes very thick, at others slender.

Name—*Clavus*, a stud or button.

Trefriw, North Wales!

6. *Ombrophila atro-virens.* (Pers.)

Solitary or crowded, sessile or substipitate, at first globose, then turbinate or hemispherical, immarginate, subgelatinous, æruginous-green; asci cylindraceo-clavate; sporidia 8, cylindrical, obtuse at the ends, curved, 3 to 4-septate, often constricted at the septa, 14—18 × 3—4μ; paraphyses filiform, branched, adherent.

Spermogonia solitary or cæspitose, often coalescing into a common truncate head; bearing narrowly ovoide spermatia, on slender, branched sterigmata.

Peziza atro-virens—Pers., "Syn. Fung.," p. 635; Fries, "Sys. Myco.," ii. p. 141; "Eng. Flo.," v. p. 205; Grev., "Flo. Edin.," p. 425; Cooke, "Handbk.," No. 2099. *Coryne virescens*—Tul., "Select. Fung. Carp.," iii. p. 193, t. xviii. f. 12–15. *Calloria atro-virens*—Fries, "Summa Veg. Scan.," p. 359; Pat., p. 75, f. 174. *Chlorosplenium atro-virens*—De Not., "Disc.," p. 23.

Conidial form: *Dacrymyces virescens*—Fries, "Sys. Myco.," ii. p. 229. *Mollisia atro-virens*—Gill., "Champ.," p. 126.

Exs.—Phil., "Elv. Brit.," 141; Rhem, "Asco.," 618.

On decaying wood; on decorticated branches in damp places, etc.

Usually small, scattered, dark green, convex, of a decidedly gelatinous texture.

Name—*Ater*, black, *virens*, green.

Near Ludlow, Shropshire! The Wrekin, Shropshire! near Bristol! (Mr. C. Bucknall).

Genus V.—Calloria. Fries (amended).

Gelatinous, at first spherical, immarginate, then becoming plane or concave, sessile or substipitate; for the most part bright-coloured, with no distinct excipulum; sporidia 8, minute. (Plate X. fig. 63.)

Spermogonia occur in *fusarioides*.

Rarely exceeding ½ to ¾ of a line broad; soft when moist, slightly horny when dry.

Growing on dead wood, herbaceous stems, and fungi.

Name—κάλλος (καλός), beauty; beautifully coloured.

Arrangement of the Species.

A.	Exterior of cups pubescent.	
	(*a*) Sporidia fusiform	species 1, 2
	(*b*) Sporidia cylindrical	„ 3
B.	Exterior of cups glabrous	
	(*a*) Sporidia subglobose	„ 4
	(*b*) Sporidia elliptic	„ 5–8
	(*c*) Sporidia fusiform.	
	(*α*) Simple	„ 9–11
	(*β*) Septate	„ 12. 13
	(*d*) Sporidia filiform	„ 14–18
C.	Doubtful	„ 19

Key to the Species.

	Hymenium some shade of red	1
	Hymenium some shade of yellow	4
	Hymenium white	6
1.	Paraphyses filiform	2
	Paraphyses globose or subglobose at the apices ..	3
2.	Exterior woolly, ashy-pink: growing on *Sterium* ..	*stereicola.*
	Exterior glabrous, bright red: on *Conium maculatum*	*coniicola.*
	Exterior glabrous, reddish flesh-colour: on *Rubus cæsius*	*rubicolor.*
	Exterior glabrous, flesh-red: on dead wood ..	*rubella.*
	Exterior glabrous, orange-colour: associated on a *Tapesium*	*auricolor.*

3.	Exterior glabrous, flesh-red; sporidia subglobose..	*coccinella.*
	Exterior glabrous, yellowish-scarlet; sporidia globoso-elliptic	*xanthostigma.*
	Exterior glabrous, pale vinous-red; sporidia filiform	*vinosa.*
4.	Exterior granular, gummy; paraphyses urn-shaped at the apices..	*lasia.*
	Exterior granulated; paraphyses filiform	*cornea.*
	Exterior at first pubescent, then glabrous; paraphyses filiform	*chrysostigma.*
	Exterior glabrous	5
5.	Paraphyses globose at the apices; sporidia filiform or fusoidio-filiform	*luteo rubella.*
	Paraphyses subclavate at the apices, sporidia oblong-fusiform	*fusarioides.*
	Paraphyses filiform; sporidia acicular-filiform ..	*inflatula.*
	Paraphyses thickened at the apices; sporidia elliptic, large	*ulcerata.*
	Paraphyses filiform: growing on *Polyporus* ..	*Leightoni.*
6.	Exterior glabrous, white, becoming yellow; paraphyses globose at the apices	*leucostigma.*
	Exterior subfarinose, pallid-white	*dentata.*
	Imperfectly described	*diaphana.*

A. EXTERIOR OF CUP PUBESCENT.

(*a*) *Sporidia fusiform.*

1. *Calloria lasia.* (B. and Br.)

Globose, erumpent, orange-colour, at length opening with a torn dentate mouth; externally gummy; asci subcylindrical; sporidia 8, fusiform, 12 × 2μ; paraphyses urn-shaped, and sometimes uniseptate at the apices, intermixed with short flocci.

Peziza lasia—B. and Br. in "Ann. Nat. Hist.," No. 1391, t. 8, f. 10; "Grevillea," ii. p. 162.

Exs.—Rabh., "Fung. Eur.," nov. ed., 1515.

On bark and wood of elm. March.

Half to one line broad. The dried specimens are dull red, and minutely verrucose externally; the disc of a somewhat brighter colour. The apices of the paraphyses are very remarkable, reminding one of the young capsule of a *Bryum*.

Name—λάσιος, hairy.

Langridge!

2. *Calloria chrysostigma.* (Fries.)

Gregarious, sessile, with a broad stem-like base, bright yellow, sometimes white, soft, submembranaceous, globose, then plano-concave, at first slightly pubescent, then glabrous; asci clavate or cylindraceo-clavate; sporidia 8, fusiform, straight, 12 × 2μ; paraphyses filiform.

Peziza chrysostigma—Fries, "Sys. Myco.," ii. p. 128. *Helotium chrysostigma*—Karst., "Myco. Fenn.," p. 148; Gill., "Champ.," p. 155.

On dead fronds of *Pteris aquilina, Athyrium,* etc.

A very minute and variable species, now yellow, now white; at first pubescent, then glabrous.

Name—χρυσός, gold, στίγμα, a point.

King's Lynn! (Mr. C. B. Plowright).

(*b*) *Sporidia cylindrical.*

3. *Calloria stereicola.* (Cooke.)

Gregarious, minute, sessile or substipitate, globose, then cup-shaped, between fleshy and waxy; externally woolly, of a delicate rosy-pink when dry; hymenium the same colour; asci subclavate; sporidia 8, cylindrical, obtuse, 7 × 1·5μ; paraphyses slenderly filiform.

Peziza stereicola—Cooke in "Grevillea," i. p. 130.

Exs.—Phil., "Elv. Brit.," No. 186.

On the hymenium of *Stereum.*

Cups 300 to 700μ broad. The delicate pubescence is seen best in recently collected specimens; some of the cups are furnished with a decided stem; when moist the flesh is soft.

Name—*Stereum,* a genus of fungi, *colo,* to inhabit.

Scotland (Herb. Edin.). Sutton Park, Birmingham (Mr. W. B. Grove). Colwyn, North Wales!

B. EXTERIOR OF CUPS NAKED.

(*a*) *Sporidia subglobose.*

4. *Calloria coccinella.* (Sommf.)

Scattered or gregarious, sessile, minute, subtremellose when moist, collapsing when dry, flesh-red; asci

cylindraceo-clavate; sporidia subglobose, uniseriate, 2μ; paraphyses filiform, very slender, subglobose apices, colourless.

Peziza coccinella—Sommf., "Lapp.," p. 276; Fries, "Elench.," ii. p. 112; Karst., "Pez. et Ascob.," p. 36. *Orbilia coccinella*—Fries, "Summa Veg. Scan.," p. 357; Karst., "Symb. Myco.," p. 98. *Mollisia coccinella*—Gill., "Champ.," p. 129.

Exs.—Rehm, "Asco.," Nos. 71 and 71*b*.

On dead wood.

About 500μ broad.

Name—Diminutive of *coccineus*, scarlet.

Form *condensata*. Phil.

Forming condensed fasciculate heaps.

Forres, N.B., in Herb. Currey! (Rev. Dr. Keith).

(*b*) *Sporidia elliptic.*

5. *Calloria xanthostigma*. (Fries.)

Scattered, plane, submembranaceous, translucent, glabrous, yellow, inclining to scarlet; collapsing when dry; asci cylindrical or cylindraceo-clavate; sporidia 8, uniseriate, globose-elliptic, 3 × 1—1·5μ; paraphyses filiform, extremely slender, globose at the apices.

Peziza xanthostigma—Fries, "Obs. Myco.," i. p. 166; "Sys. Myco.," ii. p. 146; "Eng. Flo.," v. p. 206; Karst., "Pez. et Ascob.," p. 39; "Mon. Pez.," p. 174; Nyl., "Pez. Fenn.," p. 54; Berk., "Outl.," p. 371; Cooke, "Handbk.," No. 2107. *Orbilia leucostigma*—var. β. *xanthostigma*, Fries—Karst., "Myco. Fenn.," p. 99. *Mollisia xanthostigma*—Gill., "Champ.," p. 125.

Exs.—Phil., "Elv. Brit.," 130.

On dead wood.

Name—$\xi\alpha\nu\theta\acute{o}\varsigma$, yellow, $\sigma\tau\acute{\iota}\gamma\mu\alpha$, a point.

Shrewsbury!

6. *Calloria Leightoni* (nov. sp.).

Scattered, minute, sessile, hemispherical, then slightly concave; margin incurved; exterior glabrous, very pale

yellow; hymenium same colour; asci clavate; sporidia 8, oblong-elliptic, 8 × 3μ; paraphyses slenderly filiform.

Peziza hyalina—Herb. Leighton at Kew.

On *Polyporus*.

Cups ½ to 1 line broad. The colour varies from white to very pale yellow; somewhat diaphanous. The sporidia are considerably larger than *Peziza epipora*, Nyl.

Name—After the Rev. W. A. Leighton.

Near Shrewsbury! (Rev. W. A. Leighton).

7. *Calloria ulcerata*. Phil. and Plow.

Scattered, erumpent, plane; margin fimbriate; hymenium dirty orange; asci clavate; sporidia 4, elliptic, granular within, 15 × 8μ; paraphyses filiform, simple or forked, enlarged at the summits, often contorted.

Peziza ulcerata—Phil. in "Elv. Brit.;" Phil. and Plow., "Grevillea," iv. p. 122, t. 62, f. 5. *Peziza tripolii*—B. and Br., "Ann. Nat. Hist.," No. 1623.

Exs.—Phil., "Elv. Brit.," No. 83; Winter, "Fungi Eur.," 2206; Cooke, "Fung. Brit.," ed. ii. No. 549.

On dead stems of *Aster tripolium*.

Allied to *P. fusarioides*, Berk.

Name—From *ulcero*, to form scabs; scabby.

King's Lynn! (Mr. C. B. Plowright).

8. *Calloria leucostigma*. (Fries.)

Gregarious or scattered, sessile, plane, submembranaceous, white, becoming yellowish, translucent; asci cylindrical or cylindraceo-clavate; sporidia 8, globose-elliptic, uniseriate, 2 × 1·5μ; paraphyses filiform, extremely slender, globose at the apices.

Peziza leucostigma—Fries, "Obs. Myco.," i. p. 165; "Sys. Myco.," ii. p. 146; Karst., "Pez. et Ascob.," p. 39; "Mon. Pez.," p. 74; Nyl., "Pez. Fenn.," p. 54; "Eng. Flo.," v. p. 206; Berk., "Outl.," p. 371; Cooke, "Handbk.," No. 2108. *Orbilia leucostigma*—Fries, "Summa Veg. Scan.," p. 357; Karst., "Myco. Fenn.," p. 99. *Mollisia leucostigma*—Gill., "Champ.," 126.

On dead wood.
About ¼ to ½ a line broad.
Name—λευκός, white, στίγμα, a point.
Shrewsbury!

(*c*) *Sporidia fusiform.*

(*a*) *Simple.*

9. *Calloria rubicola.* Cooke and Phil.

Gregarious, sessile, applanate, reddish flesh-colour, glabrous; margin prominent, rather obtuse; asci clavate; sporidia 8, fusiform, 9—11 × 1μ; paraphyses slenderly filiform.

On *Rubus cœsius.*

Cups ¼ to ¾ of a line broad. This is very similar to *Peziza vinosa,* but differs in the sporidia.

Name—*Rubus,* the genus to which the bramble belongs, *colo,* to inhabit.

King's Cliffe! (Rev. M. J. Berkeley).

10. *Calloria fusarioides.* (Berk.)

Gregarious, rotund or oblong, nearly plane, orange-fulvous or orange-red; asci clavate; sporidia 8, oblong or oblong-fusiform, curved, guttulate or pseudo-uniseptate, 10—14 × 3—3·5μ; paraphyses filiform, slender, apices clavate.

Spermogonia gregarious, gelatinous, difformed, discoid, or for the most part oblong or ovate, when dry applanate, often confluent, similar in size and colour to the ascigerous stage; sterigmata slender, branched; spermatia filiform, straight, about 10μ long, 1μ thick.

Peziza fusarioides—Berk. in "Mag. Zool. Bot.," 1837, i. p. 46, t. 2, f. 4; "Outl.," p. 371; Nyl., "Pez. Fenn.," p. 57; Karst., "Mon. Pez.," p. 176; Cooke, "Handbk.," No. 2114. *Calloria fusarioides*—Fckl., "Symb. Myco.," p. 282. *Mollisia fusarioides*—Gill., "Champ.," p. 120, c. i.

Exs.—Desm., "Crypt. Fr.," ed. i. 1063, ed. ii. 463; Berk., "Brit. Fung.," 67; Fckl., "F. Rh.," 1131; Lib., ex. 29; Rabh., "Herb. Myco.," ed. ii. 676; Karst., "Fung.

Fenn.," 646; Cooke, "Fung. Brit.," 343, ed. ii. 381; Phil., "Elv. Brit.," 82; Rhem, "Asco.," 72 and 118.

Spermogonia form—Desm., "Crypt. Fr.," ed. ii. 402; Rabh., "Herb. Myco.," ed. ii. 73; and "Fung. Eur.," 384.

On dead stems of nettle.

$\frac{3}{8}$ to $\frac{1}{4}$ of a line broad.

Name—*Fusarium*, a genus of fungi, εἶδος, likeness.

11. *Calloria dentata.* (Pers.)

Sessile, very minute, at first subglobose, then hemispherical, soft, pallid-white, subfarinaceous; margin dentate; asci clavate; sporidia 8, biseriate, fusiform, 5 × 1—2μ; paraphyses not seen.

Peziza dentata—Pers., "Icon. et Descr.," p. 5, t. 1, f. 6, 7; "Myco. Eur.," p. 315; Fries, "Sys. Myco.," ii. p. 147. *Mollisia dentata*—Gill., "Champ.," p. 124.

On decorticated twigs.

Cups 300 to 400μ broad.

Name—*Dens*, a tooth; toothed.

Herb. Berkeley.

(β) *Septate.*

12. *Calloria cornea.* (B. and Br.)

Minute, gregarious, sessile, at first globose, yellow horn-coloured, at length shortly obconic or turbinate and orange-brown; asci clavate, pointed at the summit; sporidia 8, fusiform, slightly curved, biguttulate, at length pseudo-uniseptate, 15 × 2μ; paraphyses filiform, very slender.

Peziza cornea—B. and Br. in "Ann. Nat. Hist.," No. 578; Cooke, "Handbk.," No. 2113.

On dead culms of *Carex paniculata.* March.

Cups 300 to 500μ broad. "Sometimes slightly hollow, but more generally flat and granulated; margin rather jagged. An extremely pretty though minute species" (B. and Br.).

Name—*Corneus*, horny; from the colour.

Bathcaston! (C. E. Broome, Esq.).

13. *Calloria Coniicola* (nov. sp.). Cooke and Phil.

Gregarious or crowded, hemispherical, then expanded, concave, flesh-red; margin involute; hymenium brighter red; asci clavate; sporidia 8, narrowly fusiform, becoming uniseptate, 13 × 2μ; paraphyses filiform, slender.

On dead stems of *Conium maculatum*.

Cups 300 to 500μ broad.

Name—*Conium*, a genus of plants, *colo*, to inhabit.

King's Cliffe! (Rev. M. J. Berkeley).

(*d*) *Sporidia filiform.*

14. *Calloria vinosa*. (A. and S.)

Minute, sessile, subtremellose, nearly plane, smooth, quite entire, pale vinous-red; asci clavate; sporidia 8, filiform-acicular, straight or curved, 10—15 × 1μ; paraphyses filiform, slender, sometimes branched, with globose, pyriform, or thickened apices. (Plate X. fig. 63.)

Peziza vinosa—A. and S., p. 308; Fries, "Sys. Myco.," ii. p. 141; Wallr., "Flo. Germ.," p. 469; "Eng. Flo.," v. p. 205; Berk., "Outl.," p. 370; Karst., "Pez. et Ascob.," p. 37; "Mon. Pez.," p. 176; Cooke, "Handbk.," No. 2097. *Mollisia vinosa*—Gill., "Champ.," p. 125. *Calloria vinosa*—Fries, "Summa Veg. Scan.," p. 359; Fckl., "Symb. Myco.," p. 283. *Orbilia vinosa*—Karst., "Myco. Fenn.," p. 101.

Exs.—Rav., iv. No. 19; Rabh., "Fung. Eur.," nov. ed. No. 1412; Roumg., "Fung. Gal.," 1252.

On fallen branches, bark, and wood.

Name—*Vinum*, wine; of the colour of red wine.

Common!

15. *Calloria luteo-rubella*. (Nyl.)

Scattered, minute, disciform, glabrous, somewhat tremelloid, yellowish-red or yellowish-brown; asci cylindraceo-clavate; sporidia fusiform or fusi-filiform, 7—10 × 1—1·5μ; paraphyses filiform, slender, apices nearly globose.

Peziza luteo-rubella—Nyl., "Pez. Fenn.," p. 55;

Karst., "Mon. Pez.," p. 175; Phil. and Plow., "Grevillea," x. p. 68. *Orbilia luteo-rubella*—Karst., "Symb.," p. 248; "Myco. Fenn.," p. 101.

On dead willow bark. Nylander and Karsten find it on poplar and elder, also on dead polyporus. July to September.

Cups about $\frac{1}{4}$ to $\frac{3}{4}$ of a line broad. Approaches very near to *C. leucostigma*.

Name—*Luteus*, yellow, *rubellus*, reddish.

Shrewsbury!

16. *Calloria rubella*. Pers.

Gregarious, minute, sessile, between soft and waxy, becoming somewhat plane, smooth, flesh-red; margin sublaciniate; sporidia 8, minute, cylindrical, $6 \times 2\mu$.

Peziza rubella—Pers., "Syn. Fung.," p. 635; and "Myco. Eur.," i. p. 304; A. and S., p. 308; Fries, "Obs. Myco.," i. p. 163; "Sys. Myco.," ii. p. 141; "Summa Veg. Scan.," p. 353; Wallr., "Flo. Germ.," p. 469; Rabh., "Krypt. Flo.," i. p. 347; B. and Br., "Ann. Nat. Hist.," No. 1484; "Grevillea," iii. p. 122. *Mollisia rubella*—Gill., "Champ.," p. 124.

Exs.—Karst., "Fung. Fenn.," No. 834.

On decayed wood with *P. vinosa*.

"Cups 1 to 2 lines broad" (B. and Br.). "Semi-pellucid, convex, then plane and subflexuose; margin minutely velvety" (M. C. C. in MS.).

Name—*Rubella*, reddish.

New Pitsligo (Rev. J. Fergusson).

17. *Calloria auricolor*. (Blox.)

Gregarious, soft, subgelatinous, orange, marginate, springing from a stratum of delicate, hyaline filaments; sporidia 8, narrow.

Peziza auricolor, Blox.—B. and Br., "Ann. Nat. Hist.," No. 1068; Cooke, "Handbk.," No. 2098.

On the under side of a fallen tree.

"Cups with a broad raised margin, springing from delicate, radiating, hyaline, interwoven hairs. The

evident affinity of this species to *P. vinosa* induces us to place it in *Mollisia* rather than in *Tapesia*" (M. J. Berk.).

Name—*Aurum*, gold, *color*, colour; golden-yellow.

Gopsal (Rev. A. Bloxam).

18. *Calloria inflatula.* (Karst.)

Gregarious, nearly plane, thin, hyaline-white, when dry globose-inflated, angularly contracted, dirty-yellow or nearly brick-red; asci cylindraceo-clavate; sporidia 8, acicular-filiform, 4—7 × 5μ.

Peziza inflatula—Karst., "Mon. Pez.," p. 175. *Orbilia inflatula*—Karst., "Myco. Fenn.," p. 100.

On bark and wood.

Cups $\frac{1}{2}$ to $\frac{3}{4}$ of a line broad. Nearly allied to *Peziza epipora*, Nyl.

Leigh Woods and Stapleton Park, near Bristol! (Mr. C. Bucknall).

19. *Calloria diaphana.* (Sow.)

Scattered, urceolate, then plane, whitish, hyaline.

Mollisia diaphana—Gill., "Champ.," p. 132. *Peziza vulgaris*, Fries, var. β. *diaphana*—Sow., "Fung.," t. 389, f. 7. *Mollisia vulgaris*—Gill., "Champ.," p. 119.

On fallen branches.

Name—διαφάνής, diaphanous; transparent.

Order V.—DERMATEÆ. Fries.

Receptacles corky, coriaceous, or horny, mostly erumpent and cæspitose, sessile or substipitate, urceolate, concave or plane; epiphytal. (Plates X., XI. figs. 64–69.) In some of the genera included here spermogonia and pycnidia have been observed.

The plants in this order are characterized by their firm texture and dark colour, varying from rhubarb-brown to umber-brown and black; they are nearly all erumpent, and the majority cæspitose and united at the

base, as if arising from a common stroma. In *Tympanis* they approach *Patellaria*; in *Heterosphæria* they simulate *Sphæria*; in *Dermatea* they have some likeness to *Helotium*; but attention to the texture and fructification will prevent the possibility of error.

Name—from the typical genus *Dermatea*.

ARRANGEMENT OF THE GENERA.

I. *Encœlia*. Fries.	IV. *Tympanis*. Fries.
II. *Dermatea*. Fries.	V. *Crumenula*. De Not.
III. *Cenangium*. Fries.	VI. *Ephelis*. Fries.

KEY TO THE GENERA.

	Receptacles seated on an effused horny crust ..	*Ephelis*.
	Receptacles corky or granular; flesh generally brown	*Dermatea*.
	Receptacles coriaceous; sporidia filiform	*Crumenula*.
	Receptacles coriaceous; sporidia oblong	*Encœlia*.
	Receptacles horny or coriaceous, the base more or less prolonged below (so that they are not globose, as in *Heterosphæria*)	1
1.	Receptacles black, very rarely mealy	*Tympanis*.
	Receptacles rarely quite black, generally mealy ..	*Cenangium*.

GENUS I.—ENCŒLIA. Fries.

Cups sessile, at first closed or nearly closed, at length open, concave, more or less coriaceous; externally furfuraceous or naked; sporidia 8, oblong; epiphytal. (Plate X. fig. 64.)

Name—ἔν, within, and κόιλος, hollow

Only three British species.

KEY TO THE SPECIES.

	Externally blackish	1
	Externally pale tan	*furfuracea*.
1.	Externally rugose	*fascicularis*.
	Externally verrucose	*Bloxami*.

1. *Encœlia fascicularis*. (A. and S.)

Cæspitose, rarely solitary, sessile, leathery membranaceous, irregular, rugose, blackish; externally rather mealy; hymenium concave, dark bay-brown, becoming paler; asci cylindracec-clavate; sporidia 8, oblong.

straight or curved, 14 × 4μ; paraphyses filiform, clavate at the apices. (Plate X. fig. 64.)

Peziza fascicularis—A. and S., "Consp.," p. 315, t. 12, fig. 2; Fries, "Sys. Myco.," ii. p. 75; "Eng. Flo.," v. p. 191; Cooke, "Handbk.," No. 2009. *Encœlia fascicularis*—Karst., "Myco. Fenn.," p. 217. *Dermatea fascicularis*—Fckl., "Symb. Myco.," p. 278. *Peziza crispa*—Sow., t. 425; Purt., "Midl. Flo.," t. 7. *Cenangium fasciculare*—Gill., "Champ.," p. 196.

Exs.—Fries, No. 291; Sommf., No. 97; Berk., exs. No. 154; Rabh., "Fung. Eur.," No. 721; Fckl., "F. Rh.," No. 1028; Karst., "Fung. Fenn.," No. 69; Cooke, "Fung. Brit.," No. 478; Phil., "Elv. Brit.," 17; Rehm, "Asco.," No. 301; Roümg., "Fung. Gal.," 2274.

On dead branches of *Fraxinus, Salix, Populus*, etc.

Cups about 4 lines broad. Cæspitose, 6 to 12 united, but sometimes solitary, thin, submembranaceous, hemispherical, but compressed, and margin sinuate; externally blackish, coated with a fugaceous meal.

Name—*Fasciculus*, a small bundle; fasciculate.

King's Cliffe, Northamptonshire (Rev. M. J. Berkeley). King's Lynn! (Mr. C. B. Plowright). Near Carlisle! (Dr. Carlyle).

Var. *repagulis*—Cooke in "Fung. Brit.," ed. ii. No. 364.

2. *Encœlia furfuracea*. (Fries.)

Sessile, between fleshy and leathery; externally pallid, mealy; margin involute, entire; hymenium cinnamon-blackish; asci cylindrical; sporidia 8, oblong, straight or curved, 2 to 4-guttulate, 10—12 × 3μ; paraphyses stout, enlarged upwards.

Peziza furfuracea—Fries, "Sys. Myco.," ii. p. 76; "Eng. Flo.," v. p. 192; Roth., ii. t. 9, f. 3; Pers., "Syn. Fung.," p. 672; Cooke, "Handbk.," No. 2010. *Cenangium furfuracea*—Gill., "Champ.," p. 196. *Dermatea furfuracea*—Fries, "Summa Veg. Scan.," p. 362; Fckl., "Symb. Myco.," p. 278. *Encœlia furfuracea*—Karst., "Myco. Fenn.," p. 218.

Exs.—Karst., "Fung. Fenn.," No. 326, 554; Fckl., "F. Rh.," No. 326; Rav., vi. No. 86; Cooke, "Fung. Brit.," 453; Phil., "Elv. Brit.," 18.

On *Corylus avellana* and *Alnus incanus*.

Varying greatly in size from 1½ lines to ½ an inch broad. Cæspitose or solitary, erumpent, variously deformed by pressure, coated with a pale rusty meal; hymenium cinnamon.

Name—*Furfur*, bran; branny.

Glapthorn, Northamptonshire (Rev. M. J. Berkeley). King's Lynn, Norfolk! (Mr. C. B. Plowright).

3. *Encœlia Bloxami* (nov. sp.).

Gregarious, often cæspitose, shortly stipitate, cyathiform, coriaceous, blackish brown, minutely verrucose; hymenium lurid brown; margin slightly undulating; flesh dark purple-brown; asci clavate; sporidia 8, elliptic, 3—4 × 2μ; paraphyses filiform, adherent.

Fusiform, uniseptate, stylospores on slender filaments are abundantly intermixed with the asci and paraphyses, the summits rising a little above the surface of the hymenium.

Patellaria Bloxami—Berk. in Bloxam's herb. at Kew.

On dead wood.

Cups about 1 to 4 lines broad. When dry the plant is black; the purple-brown colour of the interior is only visible in a microscopic section. The stylospores appear to arise from the subhymenial tissue, and are by no means an accidental addition, for they are present in all the cups I examined. They are similar bodies to those in *Peziza diplocarpa*, Currey, and cannot be explained as spores that have germinated. On the surface of the very young cups a few short hairs occur. The cells of the pseudo-parenchyma are about 7 to 5μ across.

Habitat not given.

Genus II.—Dermatea. Fries.

Excipulum somewhat corky, at first entirely closed, then from urceolate becoming expanded, often erumpent, scattered or cæspitose, with the stems united into a common stratum; sporidia large; epiphytal. (Plate X. fig. 65.)

Pycnidia and Spermogonia are found in some species.

Name—δέρμα, leather; from the texture.

Arrangement of the Species.

A.	Sporidia elliptic, 1-septate	species 1
B.	Sporidia oblongo-elliptic	
	(*a*) Sporidia simple	„ 2, 3
	(*b*) Sporidia becoming pseudo-septate	„ 4–9

Key to the Species.

Hymenium at first orange-red, then pale tan-colour: on pine-leaves	*nectrioides.*
Hymenium livid: on dead wood	*livida.*
Hymenium cinnamon-yellow: on dead wood ..	*cinnamomea.*
Hymenium orange-yellow: on beech	*Fagi.*
Hymenium dirty-yellow, becoming brown: on Portugal laurel	*Houghtonii.*
Hymenium reddish-brown: on *Ulex*	*Ulicis.*
Hymenium rhubarb-colour: on wild rose	*rhabarbarina.*
Hymenium pale flesh-colour: on oak	*dryina.*
Hymenium reddish clay-colour: on cherry ..	*Cerusi.*

A. SPORIDIA ELLIPTIC, 1-SEPTATE.

1. *Dermatea Ulicis.* Cooke.

Cæspitose or scattered, substipitate; cups at first turbinate, then open; externally reddish-brown, furfuraceous; hymenium darker, concave; asci cylindraceo-clavate; sporidia 8, elliptic, uniseptate, brown, 12 × 5μ; paraphyses subclavate at the tips, and brownish.

Dermatea Ulicis—Cooke in "Grevillea," iii. p. 186.

On dead twigs of *Ulex*.

Cups ½ to 1 line broad; the colour of ground coffee.

Name—*Ulex*, the genus to which gorse belongs; found on gorse.

Shere, Surrey (Dr. M. C. Cooke).

B. SPORIDIA OBLONG-ELLIPTIC.

(*a*) *Sporidia simple.*

2. *Dermatea nectrioides* (nov. sp.).

Gregarious or cæspitose, erumpent, sessile, at first subglobose, then plane, orbicular, reddish-brown; hymenium at first bright orange-red, becoming pale tan-colour; asci cylindraceo-clavate; sporidia 8, oblong-elliptic or oblong, rounded at the ends, with one or two large guttulæ, straight or slightly bent, 20—25 × 7μ; paraphyses filiform, slender, branched.

On cones of *Pinus sylvestris.*

Cups 300 to 500μ broad. The cups issue singly or in groups of two or three, through an elongated slit in the epidermis, which is usually black on the margin. They are at first globose, bright orange-red, shining, hardly to be distinguished from a *Nectria;* at a later stage the disc becomes plane or convex and pale tan-colour. It is a near ally of *Dermatea conigena,* Phil.

Name—*Nectria,* a genus of fungi, εἶδος, resemblance.

Barn Green, near Birmingham! (Mr. W. B. Grove).

3. *Dermatea dryina.* Cooke.

Cups sometimes single, sometimes three or four together, convex-plane, flesh-colour, ½ a line diameter or less, erumpent; margin very slightly elevated or not at all; substance fleshy or rather tough; asci clavate; sporidia 8, elliptic, attenuated a little towards each end, straight or a little curved, 30—35 × 10—12μ (Cooke in litt.).

Dermatea dryina—Cooke, "Grevillea," vii. p. 62.;

On oak bark.

Cups ½ a line broad at most; sporidia larger than in *D. carpinea.*

Name—δρῦς, oak; found on oak.

Near Hereford! (Mr. M. C. Cooke).

(*b*) *Sporidia becoming pseudo-septate.*

4. *Dermatea livida.* (B. and Br.)

Minute, gregarious, often crowded, subhemispherical, sessile olivaceous yellow; hymenium plane, margin

whitish, externally minutely silky; asci subfusiform or clavate; sporidia 8, oblong or elliptic, with 3 to 4 distinct guttæ, at length 1 to 3 pseudo-septate, 22—25 × 5μ.

Patellaria livida—B. and Br., "Ann. Nat. Hist.," No. 775; Cooke's "Handbk.," No. 2167. *Patellaria constipata*—Blox., MSS.; Cooke, "Handbk.," No. 2176.

Exs.—Cooke, "Fung. Brit.," No. 578.

On fallen firs. December.

Cups ¼ to ½ a line broad; greyish-white when dry.

Name—*Lividus*, of a pale lead-colour.

Gopsal Park, Leicestershire! (Messrs. Berkeley and Broome).

5. *Dermatea Cerasi.* (Pers.)

Solitary or subcæspitose, erumpent, at first tuberculate, reddish clay-colour, then plane, blackish, with an elevated, subrepand margin, irregular; exterior rugose, sometimes sprinkled with a greenish meal; hymenium brownish or blackish; asci cylindraceo-clavate; sporidia 8, narrowly oblong, straight or slightly bent, becoming pseudo-uniseptate, 20 × 5μ; paraphyses filiform, adherent, brown at the apices.

Pycnidia intermixed with the above or separate, conical, coriaceous, furfuraceous, opening by a minute pore; stylospores narrowly fusiform, elongated, curved or flexuous, 3 to 5-septate, 40 × 2—3μ; sterigmata filiform, 20μ long.

Spermogonia smaller than the pycnidia; spermatia filiform, curved, 13 to 16μ; sterigmata filiform, branched, very short.

Peziza Cerasi—Pers., "Tent. Disp. Meth.," p. 35; "Syn. Fung.," p. 673; "Myco. Eur.," i. p. 329; "Icon. Pict.," t. 20, f. 1; Grev., "Flo. Edin.," p. 246. *Cenangium Cerasi*—Fries, "Sys. Myco.," ii. p. 180; "Eng. Flo.," v. p. 211; Berk., "Outl.," p. 374; Cooke, "Handbk.," No. 2189; Gill., "Champ.," p. 195. *Dermatea Cerasi*—De Not., "Disc.," p. 18; Tul., "Select. Fung. Carp.," iii. p. 156, t. 19, f. 13–16.

Form Spermogonia, *Sphæria dubia*—Pers., "Icon. Pict.," iv. p. 48, t. 20, f. 1.

Exs.—Berk., No. 161; Moug., No. 494; Desm., "Crypt. Fr.," ed. i. 665, ed. ii. 571; Rabh., "Herb. Myco.," ed. ii. 517; Rehm, "Asco.," 421; Roumg., "Stirpes," 265; Ellis, "N. A. Fungi," 989; Cooke, "Fung. Brit.," ed. ii. 659.

On branches of wild cherry.

Name—*Cerasus*, the genus to which the cherry belongs; inhabiting cherry.

6. *Dermatea cinnamomea.* (D. C.)

Solitary or cæspitose, sessile or substipitate; hymenium plane or convex, cinnamon-yellow, a little pulverulent beneath; asci clavate; sporidia 8, oblong, rounded at the ends, unequal-sided, 2 to 3-guttulate, at length 1 to 3 pseudo-septate, 20—30 × 8—10μ; paraphyses filiform, slender. (Plate X. fig. 65.)

Peziza cinnamomea—D. C., "Flo. Fr.," p. 23; Pers., "Myco. Eur.," p. 268; Fries, "Sys. Myco.," ii. p. 77; Berk., "Ann. Nat. Hist.," No. 1923; "Grevillea," x. p. 51.

On maple bark. December.

Name—*Cinnamomum*, cinnamon; from the colour.

Leigh Woods, near Bristol! (Mr. C. Bucknall).

7. *Dermatea Houghtonii.* Phil.

Solitary, more frequently cæspitose, erumpent; cups at first globose, then turbinate, base often combined into a common stroma, dirty yellow, becoming brown; hymenium plane or convex, immarginate, pruinose; asci broadly clavate; sporidia 8, oblong-elliptic, often unequal-sided, greenish hyaline, 3-guttulate, becoming 2 to 3 pseudo-septate, 27 × 6—9μ; paraphyses filiform, branched.

Dermatea Houghtonii—Phil. in "Grevillea," vi. p. 24.

Exs.—Phil., "Elv. Brit.," No. 144; Cooke, "Fung. Brit.," ed. ii. 660.

On dead branches of Portugal laurel. Autumn.

The cups break through transverse slits in the bark, forming elongated groups, arising from a common stroma; within they are cinnamon-yellow.

Name—After the Rev. W. Houghton.

Lilleshall, Salop! (Rev. W. Houghton).

8. *Dermatea rhabarbarina.* (Berk.).

Minute, scattered, erumpent, plane or slightly convex, clothed with tawny meal; flesh rhubarb-colour; asci clavate, broad; sporidia 8, oblong or oblong-elliptic, with one or more large guttæ, at length 1 to 2 pseudo-septate, 16—20 × 5—7μ; paraphyses numerous, clavate, brown at the apices, adherent.

Peziza rhabarbarina—Berk., "Eng. Flo.," v. p. 197. *Patellaria rhabarbarina*—Berk., "Ann. Nat. Hist.," No. *89; and "Outl.," p. 373; Cooke, "Handbk.," No. 2164. *Pezicula rhabarbarina*—Tul., "Select. Fung. Carp.," iii. p. 183; Fckl., "Symb. Myco.," 278. *Peziza ardenensis*—Mont., "Ann. Sc. Nat.," 1836, p. 287, t. 13, f. 5. *Helotium rubi*—Sprée in Rabh., "Fung. Eur.," exs. 717. *Pezicula Rosæ*—Sacc., "Myco. Ven. Sp.," 1513. *Lachnella rhabarbarina*—Fries, "Summa Veg. Scan.," p. 365.

Exs.—Rav., No. 46; Berk., 271; Lib., No. 231; Rabh., "Fung. Eur.," No. 717, nov. ed. No. 223; Fckl., "F. Rh.," No. 2075; Phil., "Elv. Brit.," No. 91; Sacc., "Myco. Ven. Sp.," No. 1513; Rehm, "Asco.," No. 355; Winter, "Fungi Eur.," 2122; Cooke, "Fung. Brit.," ed. ii. 656.

On dead branches of the wild rose.

The whole branch is sprinkled with minute scattered dots, resembling the shield of a *Lichen*, fixed by a single point into the bark, so that where they have been rubbed off a little hole is seen in the bark with raised edges, filled with the bright rhubarb-coloured flesh of the base of the cup, which can scarcely be called a stem. The disc is darker when dry, and quite flat, with a very narrow border; but when moistened it often becomes convex, and is then of an ochraceous hue, bordering on ferruginous (Berk., "Eng. Flo.").

Name—*Rhabarbarum*, another name for *Rheum*, the genus to which rhubarb belongs.

King's Lynn! (Mr. C. B. Plowright). Hencott, near Shrewsbury!

9. *Dermatea Fagi* (nov. sp.).

Erumpent, the orbicular or elliptic groups 1 to 8 lines across, splitting the epidermis; cups plane or slightly convex, mostly immarginate, when moist orange-yellow, when dry ferruginous-yellow, pruinose, densely crowded on an evident stroma; stem when present stout, continuous with the stroma; asci broadly clavate; sporidia 8, elliptic or oblong-elliptic, filled with coarsely grained protoplasm, sometimes becoming muriform, 18—23 × 9—12μ; paraphyses slenderly filiform, abundant.

Stylospores oblong-elliptic or elliptic, 10—20 × 7—9μ; produced on the surface of the stroma in tufts between the cups on clavate sporophores.

On *Fagus sylvatica*.

The cups are $\frac{1}{4}$ to $\frac{1}{2}$ a line broad. The conidia are produced in such a quantity as to form a pale stratum visible under a pocket lens. I am not aware that they have been observed in any other species.

Name—From the tree on which it grows.

Kingcausie, near Aberdeen! 1886.

Genus III.—Cenangium. Fries.

Receptacle closely shut, at length more or less open, marginate, with a thick epidermis of a different colour; hymenium even, persistent; asci cylindraceo-clavate; sporidia 8, elliptic, oblong, fusiform or filiform.

Pycnidia immersed, conical, unilocular; stylospores ovate or slenderly fusiform. (Plate X. fig. 66.)

The receptacles are erumpent, sessile or subsessile; their exterior coriaceous or membranaceous, the interior somewhat grumous. Pycnidia have not been observed in all.

Name—κενός, empty, ἄγγος, a vessel; from the hollow receptacle.

ARRANGEMENT OF THE SPECIES.

A. Sporidia elliptic.		
(*a*) Sporidia septate	species	1
(*b*) Sporidia simple	„	2–4
B. Sporidia oblong	„	5
C. Sporidia linear-fusiform or filiform ..	„	6, 7
D. Sporidia clavate	„	8, 9

KEY TO THE SPECIES.

	Externally glabrous	1
	Externally more or less powdery	2
1.	Hymenium black, margined, substipitate: on birch	*seriatum.*
	Hymenium nearly black, scarcely margined, substipitate	*prunastri.*
	Hymenium blackish-brown, margined, sessile ..	*subnitidum.*
	Hymenium pale cinereous; margin fimbriate, connivent, turbinate	*Ribis.*
2.	Hymenium whitish cinereous; margin lacerated ..	*fuliginosum.*
	Hymenium yellowish	3
	Hymenium brown	*phæosporum.*
	Hymenium black	*Rubi.*
3.	Externally rugose, powder reddish	*ferruginosum.*
	Externally even, powder whitish	*pulveraceum.*

A. SPORIDIA ELLIPTIC.

(*a*) *Sporidia septate.*

1. *Cenangium prunastri.* Fries.

Cæspitose, erumpent, substipitate or subcylindrical, united at the base into a common stroma, horny, smooth, blackish; hymenium plane or slightly concave, nearly black, submarginate; brown within; asci clavate; sporidia 8, oblong-elliptic, 1-septate, 10—13 × 3—4μ; paraphyses filiform, adherent, brown at the summits.

Pycnidia associated on the same stroma with the above, awl-shaped, blackish, smooth, pierced for half their length with a cylindrical cell, opening at the summit; stylospores fusiform, acute, curved, uniseptate, 15 × 2μ. (Plate X. fig. 66).

Cenangium prunastri—Fries, "Sys. Myco.," ii. p. 180; "Eng. Flo.," v. p. 211; Berk., "Outl.," p. 374; Cooke, "Handbk.," No. 2190. *Peziza prunastri*—Grev., "Flo.

Edin.," p. 425. *Dermatea prunastri*—Fries, "Sum. Veg. Scan.," p. 362; Fckl., "Symb. Myco.," p. 267.

Exs.—Berk., 162; Fckl., "F. Rh.," 1126; Rehm, "Asco.," 213.

On branches of sloe.

Name—*Prunus*, the genus to which the plum belongs.

Port Hill, Shrewsbury!

(*b*) *Sporidia simple.*

2. *Cenangium phæosporum.* Cooke.

Scattered, erumpent, clove-brown, shortly stipitate; externally rather delicately furfuraceous, attenuated downwards into the darker stem; margin a little incurved; hymenium nearly of the same colour; asci elongated, clavate; sporidia 8, uniseriate, smooth, clear brown, broadly elliptic, $12 \times 8\,\mu$; paraphyses thick, clavate, brown above.

Cenangium phæosporum—Cooke in "Grevillea," xii. p. 44.

On sycamore bark.

About $\frac{1}{2}$ a line broad.

Name—φαιός, dusky, σπόρος, seed.

Exeter! (Mr. E. Parfitt).

3. *Cenangium ferruginosum.* Fries.

Gregarious or cæspitose, subsessile, at first nearly globose, then subturbinate, coriaceo-membranaceous, rugose, coated with a reddish-brown powder, at first closed, then opening at the summit by an irregular aperture; hymenium yellowish or olive-brown; margin when dry inflexed; pale cinereous-white within; asci cylindraceo-clavate; sporidia 8, elliptic or elliptic-fusiform, obtuse, colourless, $12 \times 5\mu$; paraphyses filiform, simple.

Pycnidia associated on the same stroma with the above, small, conical; stylospores narrowly ovate, $9—10 \times 2—3\mu$.

Cenangium ferruginosum—Fries in "Vet. Ak. Handl.," 1818, p. 361; "Sys. Myco.," ii. p. 187; "Elench.,"

ii. p. 23; "Summa Veg. Scan.," p. 364; "Eng. Flo.," v. p. 212; Grev., t. 197; Berk., "Outl.," p. 374; Karst., "Symb.," p. 255; "Myco. Fenn.," p. 220; Tul., "Select. Fung. Carp.," iii. p. 168; Fckl., "Symb. Myco.," p. 269; Cooke, "Handbk.," No. 2194; Gill., "Champ.," p. 193. *Peziza abietis*—Pers., "Syn. Fung.," p. 671.

Exs.—Fries, "Scler.," No. 292; Rabh., "Herb. Myco.," ed. ii. 508 (sub nom. *Peziza pinicola*); Karst., "Fung. Fenn.," 662; Moug., 399; Fckl., "F. Rh.," 1122; Cooke, "Fung. Brit.," 662, ed. ii. 195; Phil., "Elv. Brit.," 44; Roumg., "Stirpes," 163.

† Name—*Ferrugo*, iron-rust; from the colour.

On branches of *Pinus sylvestris*.

King's Lynn! (Mr. C. B. Plowright). Hencott Pool, Shrewsbury!

4. *Cenangium subnitidum*—Cooke and Phil.

Gregarious, erumpent, turbinate, becoming patellate, blackish-brown; hymenium marginate, depressed, then plane or convex, externally naked, opaque or somewhat shining; asci clavate-cylindrical; sporidia 8, narrowly elliptic, curved, biguttulate, pale amber-colour, 15 × 5μ; pycnidia conical or subspherical, often solitary; stylospores slenderly fusiform, curved, hyaline, 10—15 × 1μ.

Cenangium subnitidum—Cooke and Phil. in "Grevillea," iii. p. 186; "Scott. Nat.," i. (new ser.) 86.

Exs.—Phil., "Elv. Brit.," No. 94.

On dead fallen branches of alder.

Disc ¼ to ½ a line broad.

Name—*Sub*, somewhat, *nitidus*, shining.

Trefriw, North Wales! Forres! (Dr. Keith).

B. SPORIDIA OBLONG.

5. *Cenangium pulveraceum*. (A. and S.)

Gregarious or crowded, stipitate, subglobose, then subhemispherical, blackish, clothed with a dense cinereous or whitish powder; hymenium concave, pallid-yellow; stem woody, blackish within; asci clavate; sporidia 8, oblong, 5—8 × 2μ; paraphyses filiform.

Peziza pulveracea—A. and S., p. 342, t. 8, f. 2; Pers., "Myco. Eur.," p. 327. *Cenangium pulveraceum*—Fries, "Sys. Myco.," ii. p. 181.

On dead stems of holly.

Name—*Pulvis*, dust; powdery.

Trefriw, North Wales!

C. SPORIDIA LINEAR-FUSIFORM OR FILIFORM.

6. *Cenangium fuliginosum.* Fries.

Gregarious or cæspitose, crowded into broad patches, sessile or subsessile, erumpent, obovate, depressed at the summit and fibrillose-striate, coated with rusty powder, at length opening by a lacerated mouth, naked and fuliginous; hymenium whitish cinereous, coriaceous-membranaceous; asci cylindraceo-clavate; sporidia 8, linear-fusiform, acute, straight or curved, 4 to 8-septate, 50—70 × 2—3μ; paraphyses filiform, sometimes branched.

Pycnidia associated on the same stroma with the above, globose, smooth, blackish, at length opening by a pore at the summit; stylospores linear-fusiform, straight or curved, 3-septate, 20—30 × 2·5μ.

Cenangium fuliginosum—Fries, "Elench.," ii. p. 23; "Eng. Flo.," v. p. 212; Tul., "Select. Fung. Carp.," iii. 166, t. 20, f. 1–4; Berk., "Outl.," p. 374; Cooke, "Handbk.," No. 2193. *Scleroderris fuliginosa*—Karst., "Myco. Fenn.," p. 216.

Exs.—Moug., 889; Sommf., 191; Rabh., "Herb. Myco.," ed. ii. 710; "Fung. Eur.," 938; Karst., "Fung. Fenn.," 336.

Name—*Fuligo*, soot; from the smoky colour.

On branches of willow.

Rockingham Forest (Rev. M. J. Berkeley).

7. *Cenangium seriatum.* Fries.

Gregarious or cæspitose, erumpent through narrow transverse cracks in the bark; cups globoso-depressed, at first closed, at length opening, horny, black, glabrous, arising, in company with the pycnidia and spermogonia,

in a linear series from a thin black stroma; asci broadly clavate; sporidia 8, linear-lanceolate, acute at the ends, straight or curved, pseudo-multiseptate, 55—85 × 2—3μ.

Spermogonia in the form of minute depressed tubercles, discharging by an apical pore the filiform-lanceolate spermatia, which are curved, and about 15μ long. Pycnidia minute, slenderly conical, discharging by a minute apical pore the linear-lanceolate stylospores, which are acute at the ends, curved, and about 30μ long.

Cenangium seriatum—Fries, "Sys. Myco.," ii. p. 185; Duby, "Bot. Gall.," p. 736, No. 10. *Peziza truncatula*—Rebent., "Neom.," p. 383. *Dermatea seriata*—Tul., "Select Fung. Carp.," vol. iii. p. 160.

Exs.—Mazerio, "Crypt. Gall.," ed. i. fasc. viii. (1829), No. 384; Lev. in Moug., "Stirp. Crypt.," fasc. xv. (1860), No. 1479.

On *Betula alba*.

The transverse cracks in the bark expose the linear series (½ to 1 inch long) composed of the three forms, the ascigerous cups being rarest. Tulasne gives the sporidia as 35—45 × 3—4μ; but in the Oxford specimen they are as given above. He says that long before the fruit can appear the linear series changes the natural colour of the white parchment-like bark to brown, and that underneath each (sorus) is a black linear ovate zone in the wood.

Name—*Series*, an order, a row; from the mode of growth.

Oxford! (Mr. Baxter).

D. SPORIDIA CLAVATE.

8. *Cenangium Ribis*. Fries.

Cæspitose, at first spherical, then turbinate; stems connate, arising from a stroma-like tubercle, blackish-brown, nearly naked, at first closed, then opening with a fimbriate, connivent margin; hymenium pale cinereous; asci cylindrical, narrowed to an elongated base; sporidia

8, linear-clavate, obtuse at one end, acute at the other, at length 3 to 5-septate, 20—38 × 3·5—4·5μ; paraphyses filiform, slender.

Pycnidia separate or united, sessile, nearly globose, glabrous, becoming fulvous, when dry cinereous-black, rugose; stylospores nearly elliptic or oblong-ovate, straight, with two large nuclei, colourless, 7—11 × 3·5—4μ; sterigmata subulate, simple, about 2μ long.

Peziza Ribesia—Pers., "Tent. Disp. Meth.," p. 35; and "Syn. Fung.," p. 672; A. and S., p. 344. *Cenangium Ribis*—Fries, "Sys. Myco.," ii. p. 179; "Elench," ii. p. 21; "Summa Veg. Scan.," p. 364; Tul., "Select. Fung. Carp.," iii. p. 163, t. 19, f. 1–9; Fckl., "Symb. Myco.," p. 267; B. and Br., "Ann. Nat. Hist.," No. 585; Cooke, "Handbk.," No. 2188. *Tympanis Ribis*—Wallr., "Crypt. Flo.," ii. p. 431. *Scleroderris ribesia*—Karst., "Myco. Fenn.," p. 215.

Pycnidia: *Sphæria Ribesia*—Link., "Hand.," iii. p. 376. *Fuckelia Ribis*—Bon., "Diss. Myco.," iv. p. 135.

Exs.—Schm., exs. No. 75; Desm., "Crypt. Fr.," ed. i. 2013, ed. ii. 1613; Karst., "Fung. Fenn.," 929; Klotzsch., 345; Rabh., "Fung. Eur.," 727; Sommf., 189; Rehm, "Asco.," 422.

On currant twigs.

Name—*Ribes*, the genus to which the currant belongs.

Thame (Dr. Ayres).

9. *Cenangium Rubi.* (Fries.)

Innato-erumpent, scattered or cæspitose, somewhat horny, smooth, nearly plane, black; hymenium becoming paler; margin erect or incurved; asci clavate; sporidia 8, cylindraceo-clavate, 7—8 × 5μ; paraphyses filiform.

Trochila Rubi—De Not., "Disc.," p. 15. *Excipula Rubi*—Fries, "Sys. Myco.," ii. p. 190; "Eng. Flo.," v. p. 296; Grev., t. 334; Fckl., "Symb. Myco.," p. 400. *Cenangium Rubi*—Berk., "Outl.," p. 374; "Ann. Nat. Hist.," No. 1924; Cooke, "Handbk.," No. 2194. *Mollisia atrata*, var. *Rubi*—Karst., "Myco. Fenn.," p. 202. *Pyrenopeziza Rubi*—Rehm, "Asco.," No. 416; Sacc., "Mich.," i. p. 423.

Exs.—Fries, "Scl. Suec.," No. 101; Fckl., "F. Rh.," 1964; Cooke, "Fung. Brit.," ii. 196; Rabh., "Fung. Eur.," 2021; Phil., "Elv. Brit.," 43; Roumg., "Fung. Gal.," 1266.

On dead raspberry-stems. Common.

A doubtful *Cenangium*.

Name—*Rubus*, a genus of *Rosaceæ*; from its habitat. Church Stretton, Salop!

Genus IV.—Tympanis. Toda.

Cæspitose or scattered, stipitate or sessile, black, at first closed, then open, concave or plane, naked or rarely mealy, firm, hörny; sporidia 8 or innumerable. Secondary fruit—pycnidia, spermogonia, or stylospores. (Plate XI. fig. 67.)

On dead wood.

Name—*τύμπᾰνον*, a drum.

Arrangement of the Species.

A. Sporidia oblong-elliptic	species	1
B. Sporidia linear-fusiform	„	2
C. Sporidia very minute, innumerable ..	„	3–8

Key to the Species.

In linear series: on *Rhamnus Frangula*	*Frangulæ.*
Gregarious or solitary: on *Ligustrum vulgare* ..	*ligustri.*
Scattered or cæspitose: on *Pinus sylvestris* ..	*amphibola.*
Scattered or cæspitose: on *Larix Europæus* ..	*laracina.*
Cæspitose in elongated groups: on *Cratægus* ..	*conspersa.*
Cæspitose in elongated groups: on *Fraxinus* ..	*Fraxini.*
Cæspitose in rounded groups: on *Sorbus aucuparia*	*Aucuparieæ.*
Cæspitose in rounded groups: on *Alnus*	*alnea.*

A. SPORIDIA OBLONG-ELLIPTIC.

1. *Tympanis Frangulæ.* Fries.

Gregarious or in linear contiguous series, turbinate-truncate, blackish, subcoriaceous; hymenium plane, umber or olive-brown, when dry black; asci broadly cylindraceo-oblong, narrowed at the base; sporidia 4, oblong-elliptic, becoming 3 to 4-septate, 19—22 × 8μ; paraphyses filiform, slightly enlarged at the apices.

"Pycnidia intermixed with the above, sphæriaform,

opening by a minute pore; stylospores oblong-ovoid, straight or curved, 25 × 6·5μ."

Tympanis Frangulæ—Fries, "Sys. Myco.," ii. p. 174; "Elench.," ii. p. 18; "Summa Veg. Scan.," p. 400; Cooke, "Handbk.," No. 2183. *Dermatea Frangulæ*—Tul., "Select. Fung. Carp.," iii. p. 161; "Ann. Sc. Nat.," 1853, t. 16, f. 1–8. *Pezicula Frangulæ*—Fckl., "Symb. Myco.," p. 279, t. 4, f. 46. *Dermatella Frangulæ*—Karst., "Myco. Fenn.," p. 209.

Exs.—Moug. and Nest., No. 887; Karst., "Fung. Fenn.," No. 47; Rabh., "Herb. Myco.," ed. ii., No. 661; Fckl., "F. Rh.," No. 764.

On *Rhamnus frangula.*

Name—*Frangula*, the specific name *Rhamnus frangula.*

Shere, Surrey; Highgate, Middlesex (Dr. Cooke).

B. SPORIDIA LINEAR-FUSIFORM.

2. *Tympanis amphibola.* (Mass.)

Rarely subcæspitose, generally scattered or solitary, at first closed and subspherical, then open and concave, at length plane, slightly marginate or convex and immarginate, rugulose, black; asci cylindraceo-clavate; sporidia 8, fusiform, 3 to 5-septate, 14—20 × 3—4μ; paraphyses filiform, slender, simple or branched, slightly thickened at the apices.

Spermogonia scattered, convex or subconical, minute; spermatia oblong, simple, 3—5 × 1—1·5μ.

Phragmophora amphibola—Mass., "Framm.," p. 13. *Peziza amphibola*—Nyl., "Pez. Fenn," p. 66; Karst., "Mon. Pez.," p. 168; Cooke, "Grevillea," i. p. 132. *Tympanis amphibola*—Karst., "Symb.," p. 252; "Myco. Fenn.," p. 230. *Scleroderris amphibola*—Gill., "Champ.," p. 198.

Exs.—Karst., "Fung. Fenn.," p. 840; Winter, "Fungi Eur.," 2960.

On *Pinus sylvestris.*

Name—ἀμφίβολος, put round.

Near Shrewsbury! Found by Dr. Hall, locality unknown to me.

C. SPORIDIA VERY MINUTE, INNUMERABLE.

3. *Tympanis laracina.* (Fckl.)

Cups scattered or cæspitose, erumpent, sessile, totally black, horny; hymenium plane, margined; asci cylindraceo-clavate; sporidia very minute, innumerable.

Pycnidia rotund, closed, at length perforated, black, rugulose; stylospores long, filiform, slender, curved, flowing out in a yellow gelatinous mass.

Cenangium Laracinum—Fckl., "Sys. Myco.," p. 270; "Grevillea," 2, p. 187.

Exs.—Phil., "Elv. Brit.," 145.

On bark of *Larix Europæus.*

Name—*Larix*, the genus to which the larch belongs.

Shrewsbury!

4. *Tympanis ligustri.* Tul.

Gregarious or solitary, erumpent, at first obtuse, then expanded into a marginate hymenium, substipitate, black, glabrous, between gelatinous and horny, pale within; asci broadly cylindrical; sporidia (?) innumerable, very minute, ovate or ovate-oblong; paraphyses filiform, slender, numerous.

Stylospores (conidia ?) diplodia-form, borne on filiform sporophores, intermixed with the asci and paraphyses.

Tympanis ligustri—Tul., "Select. Fung. Carp.," iii. p. 154; Cooke, "Handbk.," No. 2187. *Tympanis saligna*—Fries, "Sys. Myco.," ii. p. 176 (in part); B. and Br., "Ann. Nat. Hist.," No. 584; Berk., "Outl.," t. 1, f. 10; Gill.; "Champ.," p. 197. *Cenangium ligustri*—Fckl., "Symb. Myco.," p. 268.

Exs.—Fckl.; "F. Rh.," No. 767; Rabh., "Fung. Eur.," No. 229; Cooke, "Fung. Brit.," ed. ii. 461.

On *Ligustrum vulgare.*

Name—*Ligustrum*, the generic name of the host-plant.

Lucknam, Wiltshire (Messrs. Berkeley and Broome).

5. *Tympanis conspersa.* Fries.

Cæspitose, in round or elongated erumpent groups; cups substipitate, truncate-turbinate, black; hymenium plane or slightly concave, submarginate; asci cylindraceo-clavate; sporidia (?) innumerable, extremely minute; paraphyses filiform, slender, enlarged and brown at the apices, adherent.

Spermogonia usually intermixed with the above, conical or obconical, black; spermatia very minute. (Plate XI. fig. 67.)

Tympanis conspersa—Fries, "Sys. Myco.," ii. p. 175; "Eng. Flo.," v. p. 211; Grev., t. 338; Berk., "Outl.," p. 374; Tul., "Ann. Sc. Nat.," xx. (1853) t. 16, f. 15, 16; Cooke, "Handbk.," No. 2186; Karst., "Myco. Fenn.," p. 226; Gill., "Champ.," p. 197.

Exs.—Fries, "Scl. Suec.," Nos. 12 and 171; Berk., No. 160.

On *Pyrus, Crategus*, etc.

Name—*Conspersus*, sprinkled; distributed on the wood.

Bagley Wood, near Oxford! (Mr. Baxter).

6. *Tympanis Aucuparicæ.* (Pers.)

Cæspitose, black, sprinkled with whitish meal, at first spherical, then elongated, somewhat cylindrical, arising from a common stroma, closed, at length open at the apex; hymenium concave, blackish, marginate; asci clavate; sporidia innumerable, extremely minute; paraphyses filiform, slender, slightly enlarged at the summits, brown, adherent.

Spermogonia resembling the early stage of the above; spermatia extremely minute, borne on slender branched sterigmata.

Sphæria Aucuparicæ—Pers., "Syn. Fung.," p. 51; A. and S., p. 25. *Cenangium Aucuparicæ*—Fries, "Sys. Myco.," ii. p. 181; "Eng. Flo.," v. p. 212; Cooke, "Handbk.," No. 2191. *Peziza Aucuparicæ*—Grev., "Flo. Edin.," p. 426.

Exs.—Moug. and Nest., No. 789.

On dead branches of mountain ash.

Name—*Aucuparia*, the specific name of *Pyrus aucuparia*, on which it grows.

Craiglockhart (Dr. Greville).

7. *Tympanis Fraxini.* (Schwz.)

Cæspitose, in elongated erumpent groups; cups subsessile, turbinate-truncate, shining, black; hymenium plane, rugose, marginate; asci broadly clavate; sporidia (?) innumerable, extremely minute; paraphyses filiform, slender.

Peziza Fraxini—Schwz., "Synop.," No. 1262. *Tympanis Fraxini*—Fries, "Sys. Myco.," ii. p. 174; "Eng. Flo.," v. p. 210; Cooke, "Handbk.," No. 2185. *Cenangium Fraxini*—Tul., "Ann. Sc. Nat.," 1853, p. 140.

Exs.—Libert, No. 1029; Roumg., "Fung. Gal.," 1272.

On branches of ash. Winter and spring.

Name—*Fraxinus*, the generic name of the host-plant.

Appin (Capt. Carmichael).

8. *Tympanis alnea.* (Pers.)

Cæspitose, bursting through the bark in rounded groups, shortly stipitate, brownish-black, somewhat horny; hymenium plane or slightly concave, submarginate; asci cylindraceo-clavate; sporidia (?) innumerable, extremely minute; paraphyses filiform, slender, adherent, brown at the summits.

Spermogonia intermixed with the above, subconical or oblong-ovate, opening by a minute pore. Spermatia extremely minute, born on slender branched sporophores.

Peziza alnea—Pers., "Syn. Fung.," p. 673; "Myco Eur.," p. 325. *Tympanis alnea*—Fries, "Sys. Myco." ii. p. 174; "Elench.," p. 18; "Eng. Flo.," v. p. 210; Cooke, "Handbk.," No. 2184 (in part.) *Cenangium alneum*—Fckl., "Symb. Myco.," p. 271 (?).

Exs.—Sommf., No. 191.
On alder.
Name—*Alnus*, the genus to which alder belongs.
Appin!

GENUS V.—CRUMENULA. De Not., "Disc," p. 9.

Cups superficial, globose, dehiscing with a rounded, entire, or lacerated mouth, when dry closely pressed together; excipulum coriaceous, exceeding the thickish concave hymenium; asci from the slender base nearly cylindrical, 8-spored; paraphyses filiform; sporidia acicular, continuous or septate, delicate hyaline-yellow. (Plate XI. fig. 68.)

Inhabiting branches of shrubs.

Name—*Crumena*, a purse; from its shape.

KEY TO THE SPECIES.

On *vaccinium*	*urceoliformis.*
On *Calluna vulgaris*: sporidia septate	*callunigena.*
On *Calluna vulgaris*: sporidia longer and not septate	*Ericæ.*
On *Arbutus Uva-Ursi*	*Ledi.*

1. *Crumenula urceoliformis.* Karst.

Scattered, generally solitary, erumpent, sessile or subsessile, nearly globose, blackish, brown-furfuraceous, becoming concentrically sulcate and naked, at first closed, then opening with a connivent mouth; disc pale cinereous; asci cylindrical, narrowed at the base; sporidia 8, filiform, 65 × 2μ; paraphyses filiform, forked at the apices. (Plate XI. fig. 68.)

Peziza urceoliformis—Karst., "Mon. Pez.," p. 172.
Crumenula urceoliformis—Karst., "Myco. Fenn.," p. 213.

On dead stems of *Vaccinium Vitis idea.*

Name—*Urceolus*, a little pitcher, *forma*, shape.

Grantown, N.B.! (Rev. Dr. Keith).

2. *Crumenula callunigena.* Karst.

Cups solitary, nearly globose, sessile, brownish-black, naked, striate, mouth connivent; asci cylindrical, with a

slender base; sporidia 8, filiform, very often attenuated at both ends, straight, colourless, simple or slenderly 3-septate, 40—60 × 2·5μ; paraphyses crowded, apex slightly and unequally thickened.

Peziza callunigena—Karst., "Mon. Pez.," p. 171. *Crumenula callunigena*—Karst., "Symb.," p. 251; "Myco. Fenn.," p. 212.

On branches of *Calluna vulgaris*. Autumn.

Cups ·6 mm. broad. I have found this abundantly on decaying branches of *Calluna vulgaris*, and the cups are invariably seated on a blackish-brown tapesium, reminding one of *Tapesia Rosæ* (Pers.), to which it bears some resemblance.

Name—*Calluna*, a genus of *Ericaceæ*, *gigno*, to bear.

Near Clunbury, Salop!

3. *Crumenula Ericæ*. (Fries.)

Solitary, sessile, coriaceo-membranaceous, brownish-black; externally rugose; mouth compressed, connivent; asci cylindrical, narrowed at the base; sporidia 8, filiform, 90 × 1·5μ; paraphyses filiform, slender.

Pycnidia similar to the above; stylospores cylindraceo-fusiform, curved, at length uniseptate, 16 × 2μ.

Cenangium Ericæ—Fries, "Sys. Myco.," ii. p. 188.

Exs.—Phil., "Elv. Brit.," No. 194. Neither Rehm's "Asco.," No. 466, nor Rabh., "Fung. Eur.," 1445.

On dead branches of *Calluna vulgaris*.

Name—*Erica*, a genus of heaths; from its habitat.

Hadnall, Salop!

4. *Crumenula Ledi*. (A. and S.)

Scattered, superficial, sessile, at first closed, and nearly spherical, then depressed at the top, at length hemispherically collapsed, and opening with a broad mouth, rugulose, black; asci subcylindrical (sporidia not seen); paraphyses numerous, filiform.

Peziza Ledi—A. and S., p. 343, t. 10, f. 7; Fries, "Sys. Myco.," ii. p. 114; Nees, f. 264; B. and Br., "Ann. Nat.

Hist.," 160; Cooke, "Handbk.," 2080. *Crumenula Ledi* —Karst., "Myco. Fenn.," p. 214.

On *Arbutus Uva-Ursi*. September.

Sessile, globose-hemispherical; externally rugose, brownish-black; mouth especially shining, greenish, covered with a compact powder; disc dingy.

Glencoe, N.B. (Mr. Churchill Babington).

GENUS VI.—EPHELIS. Fries, "Fung. Mexic.," and "Summa Veg. Scan.," p. 370.

Perithecium (stroma) forming an effused crust; here and there tuberculate, tubercles dehiscing into cup-shaped excipula. (Plate XI. fig. 69.)

Name ἐφηλίς, spots brought out by the sun.

1. *Ephelis Rhinanthi* (nov. sp.).

Cups at first tuberculate, crowded or gregarious, arising from an effused horny crust, at length expanding, patelliform, softish-waxy, black; asci cylindraceo-clavate; sporidia 8, oblong, or clavate, 3-guttulate, $10 \times 5\mu$; paraphyses filiform, slightly enlarged at the apices. (Plate XI. fig. 69.)

Rhytisma radicalis—Cooke, "Grevillea," viii. p. 9 (the immature stage).

On stems near the base, and roots, of *Rhinanthus Crista galli*. Autumn.

The mature cups are about a ¼ of a line broad, sessile, attached by a broadish base, externally rough, internally pale grey. Dr. Cooke finds stylospores which are elongated fusiform, tapering at the extremities to a slender point, with two or more septa, $70 \times 5\mu$. The general appearance is that of a black gouty swelling, the unexpanded cups somewhat like a *Cucurbitaria*.

Name—*Rhinanthus*, the genus to which the yellow rattle belongs.

Near Aberdeen (Mr. J. Taylor). Forres, N.B.! (Rev. Dr. Keith). Osmere, near Whitchurch, Salop!

Order VI.—PATELLARIACEÆ. Fries (in part).

Cups sessile, subcoriaceous or horny, glabrous, orbicular, rarely closed at first, plane or slightly concave, black or dark-coloured (except *P. pallida*); asci cylindraceo-clavate; sporidia 8, coloured or hyaline; epiphytal. (Plate XI. figs. 70–72.)

ARRANGEMENT OF THE GENERA.

I. *Patellaria.* Fries.
II. *Heterosphæria.* Grev.
III. *Laquearia.* Fries.

KEY TO THE GENERA.

Cups open from the first	*Patellaria.*
Cups covered with a superior deciduous excipulum	*Laquearia.*
Cups at first closed, globose	*Heterosphæria.*

GENUS I.—PATELLARIA. Fries.

Excipulum between coriaceous and horny, naked, black, open from the first; disc punctiform, becoming gradually dilated, firm, acigerous, persistent. (Plate XI. fig. 70.)

ARRANGEMENT OF THE SPECIES.

A. Sporidia elliptic.	
(*a*) Coloured	species 1–3
(*b*) Hyaline, simple	„ 4
(*c*) Hyaline, septate	„ 5
B. Sporidia oblong or oblong-elliptic.	
(*a*) Hyaline, simple	„ 6
(*b*) Hyaline, septate	„ 7–13
C. Sporidia subclavate.	
(*a*) Hyaline, septate	„ 14–16
D. Sporidia fusiform or linear-fusiform.	
(*a*) Hyaline, simple	„ 17, 18
(*b*) Hyaline, septate	„ 19–21
E. Sporidia filiform	„ 22
Doubtful species	„ 23, 24

KEY TO THE SPECIES.

Hymenium white	*atro-alba.*
Hymenium pallid	*pallida.*
Hymenium citrine	*citrina.*
Hymenium olivaceous	*olivacea.*
Hymenium subpruinose; sporidia large	*atrata.*
Hymenium black	1
Hymenium fuliginous or blackish-brown	3

1.	Margin entire; sporidia vermiform	*vermifera.*
	Margin pale; sporidia clavate or fusiform, medium size	*macrospora.*
	Margin flexuous; sporidia minute, elliptic.	*flexella.*
	Margin thin, compressed; sporidia large, 3-septate	*compressa.*
	Margin thin, compressed; sporidia large, simple	*connivens.*
	Margin serrated; sporidia smaller, simple	*rubro-tingens.*
	Margin absent	2
2.	Sporidia brown	*Bloxami.*
	Sporidia hyaline; cups seated on a spot-like crust	*Lecideola.*
	Sporidia hyaline; cups emerging through the bark	*subtectum.*
3.	Margin tumid; sporidia brown	*lignyota.*
	Margin crenulate; sporidia hyaline, fusiform, large	*maura.*
	Margin incurved; sporidia hyaline, slender, small	*litoralis.*
	Margin entire; sporidia hyaline, elliptic, minute	*minutissima.*
	Margin entire; sporidia hyaline, oblong-fusiform, very large	*Loncieræ.*
	Margin obtuse; sporidia hyaline, clavate, large	*clavispora.*
	Margin vinous-purple; sporidia hyaline, fusiform	*atro-vinosa.*
	Margin absent	4
	On dead stems of *Hypericum*: sporidia 3-septate	*Hyperici.*
	On dead oak: sporidia 4 to 5-septate	*proxima.*

A. SPORIDIA ELLIPTIC.

(*a*) *Coloured, septate.*

1. *Patellaria lignyota.* Fries.

Scattered or subgregarious, sessile, when dry horny, when moist softer, applanate, concave, then plane, growing black; margin tumid, subcrenulate; hymenium when moist fuliginous; asci clavate, obtuse; sporidia 8, oblong-ovoid, brown, 1-septate, $10 \times 4\mu$; paraphyses filiform, adherent.

Patellaria lignyota—Fries, "Sys. Myc.," ii. p. 150; B. and Br., "Ann. Nat. Hist.," No. 579; Cooke, "Handbk.," No. 2177. *Arthonia melaspermella*—Nyl. in "Flora," 1855; Leighton, "Lichen Flora," ed. iii. p. 416.

Exs.—Rabh., "Myco. Eur.," 1152; Phil., "Elv. Brit.," No. 146.

On decorticated wood.

Cups about $\frac{1}{4}$ of a line broad. No visible thallus, and much resembling a *Lecidea*. Opinion will differ as to the alliance of this species, but for the present I prefer to retain it as a fungus

Name—*Lignum*, wood; from the habitat.

Bomere Pool, near Shrewsbury! near London (Mr. F. Currey). Oakley Park, Cirencester; Braydon Pool, Gloucestershire (Mr. Joshua).

2. *Patellaria Bloxami.* Berk.

Gregarious, sessile, applanate, plane or convex, black, flesh blackish-brown, when old immarginate; asci cylindraceo-clavate; sporidia 8, elliptic, uniseptate, brown, 10—15 × 5—8μ; paraphyses numerous, filiform, adherent, slightly thickened and brown above.

Patellaria Bloxami—Berk. in herb. Kew.

On rotten wood.

Cups about $\frac{1}{4}$ to $\frac{1}{2}$ a line broad. When young it has a very narrow margin.

Name—After the Rev. Andrew Bloxam.

Rev. A. Bloxam, without locality!

3. *Patellaria olivacea.* (Batsch.)

Sessile, applanate, between fleshy and waxy; externally rugulose, olivaceous; hymenium becoming black; margin prominent, tumid, entire, becoming nearly yellow; asci cylindrical; sporidia 8, elliptic or slightly turbinate, polari-guttulate, bluish-green, 9—10 × 4—5μ; paraphyses filiform, rather stout, septate, clavate at the summit.

Peziza olivacea—Batsch, "El.," f. 51; Pers., "Myco. Eur.," p. 306; Fries, "Sys. Myco.," ii. p. 142; B. and Br., "Ann. Nat. Hist.," No. 1077, t. 15, f. 22; Cooke, "Handbk.," No. 2174. *Rhizina nigro-olivacea*—Curr., "Linn. Trans.," xxiv. p. 494, t. 51, f. 10–12.

On rotten willow.

"It runs over the wood in an irregular manner, like the thallus of a *Peltidea*. In its young state it is truly *Peziza*-like, and very beautiful" (B. and Br.). Sporidia 7·6 to 10μ long.

Name—*Oliva*, an olive; of an olive-green colour.

Batheaston! (C. E. Broome, Esq.).

(*b*) *Hyaline, simple.*

4. *Patellaria flexella.* (Fries.)

Immersed, compressed, minute, concave, subcoriaceous, variously flexuose, black; asci clavate; sporidia 8, elliptic, 5 × 2·5μ; paraphyses adherent, black at the summit.

Peziza flexella—Fries, "Sys. Myco.," ii. p. 152; "Eng. Flo.," v. p. 207; Cooke, "Handbk.," No. 2125.

Exs.—Moug. and Nest., No. 1094; Roumg., "Stirpes," 333.

On dead wood, especially pine.

Cups about 100 to 290μ broad. This is usually regarded by lichenologists as a *Xylographa;* but, until this and its allies are grouped on some more satisfactory basis, we retain it here.

Name—*Flexus,* bowed; slightly bent.

Forres, N.B.! (Rev. Dr. Keith).

(*c*) *Hyaline, septate.*

5. *Patellaria minutissima* (nov. sp.).

Gregarious or scattered, very minute, sessile, when dry compressed, when moist expanded; externally blackish-brown; margin entire, incurved; hymenium fuliginous-brown; asci clavate or cylindraceo-clavate; sporidia 8, elliptic, hyaline, 2 to 3-guttulate, at length 3-septate, 6 × 3μ; paraphyses filiform, slightly enlarged at the bent apices.

On decayed wood.

Cups about 300μ broad; when dry somewhat immersed in the wood.

Name—*Minutus,* minute; very minute.

Near Shrewsbury!

B. SPORIDIA OBLONG OR OBLONG-ELLIPTIC.

(*a*) *Hyaline, simple.*

6. *Patellaria pallida.* Berk.

Gregarious, sessile, pallid, with a somewhat obtuse margin; sporidia biseriate, oblong, slightly curved; 12μ long.

Patellaria pallida—Berk., "Ann. Nat. Hist.," No. 1831; "Grevillea," vii. p. 8.

On smooth bark! (Rev. A. Bloxam).

(*b*) *Hyaline, septate.*

7. *Patellaria proxima.* B. and Br.

Orbicular, shield-like, depressed, somewhat immersed, black; hymenium same colour or brown-black; asci clavate; sporidia 8, oblong, obtuse at the ends, slightly curved, 4 to 5-septate, 17—25 × 5—6μ; paraphyses free, filiform, slender, branched.

Patellaria proxima—B. and Br., "Ann. Nat. Hist.," No. 965, t. 16, f. 18; Cooke, "Handbk.," No. 2170. *P. parvula*—Cooke, "Handbk.," 2178.

Exs.—Cooke, "Fung. Brit.," No. 660; Phil., "Elv. Brit.," No. 147.

On dead oak.

"Closely resembling *P. atrata*, but differing materially in the fruit" (B. and Br.).

Name—*Proximus*, nearest, next; from its approaching another species.

Barking! (Berkeley and Broome). Shrewsbury!

8. *Patellaria Hyperici.* Phil.

Gregarious, very minute, innate-sessile, applanate, immarginate, glabrous, blackish-brown; asci broadly clavate; sporidia 8, biseriate, oblong-elliptic, triseptate, 17—20 × 5—8μ; paraphyses filiform.

Patellaria Hyperici—Phil. in "Grevillea," x. p. 69.

On dead stems of *Hypericum*.

Cups 100 to 300μ broad, at first innate, then emerging. The sporidia of this species germinate freely within the asci, thrusting the germ-tubes through the walls of the ascus; the free sporidia often present a germ-tube twice their length while yet in the hymenium.

Name—*Hypericum*, a genus of *Hypericacea*; growing on *Hypericum*.

Shrewsbury!

9. *Patellaria compressa.* (A. and S.)

Scattered or crowded, minute, innate, thin, blackish, when dry compressed, conchiform; asci clavate; sporidia 8, oblong or oblong-elliptic, 2 to 3-septate, straight or curved, 8—11 × 3·5μ; paraphyses filiform, branched.

Peziza compressa—A. and S., p. 340; "Eng. Flo.," v. p. 207; Cooke, "Handbk.," No. 2124. *Durella compressa*—Tul., "Select. Fung. Carp.," iii. t. 22, f. 8–14; Roumg., "Fung. Gal.," 539; Gill., "Champ.," p. 191.

On dead wood.

This approaches very near to *Patellaria proxima*, B. and Br., but the sporidia are not so large.

Name—*Compressus*, pressed together; having the margin pressed together.

Appin.

10. *Patellaria lecideola.* (Fries.)

Sessile, minute, somewhat horny, concave, black, seated upon a cinereous spot-like crust; asci clavate; sporidia 8, elliptic or oblong-elliptic, pseudo-3-septate, 9—16 × 4—5μ; paraphyses filiform, slender.

Peziza lecideola—Fries, "Obs. Myco.," i. p. 166, t. 4, f. 1; Karst., "Pez. et Ascob.," p. 41; "Mon. Pez.," p. 167; Nyl., "Pez. Fenn.," p. 64. *Patellaria lecideola*—Karst., "Myco. Fenn.," p. 234; Cooke, "Handbk.," No. 2179; Gill., "Champ.," p. 191.

Exs.—Fries, "Scl. Suec.," 157; Karst., "Fung. Fenn.," 641.

On dead wood. Karsten says poplar and birch.

Name—*Lecidea*, a genus of lichens; like a small *Lecidea*.

Shere, Surrey! (Dr. Capron).

11. *Patellaria Lonicerœ* (nov. sp.).

Gregarious, minute, sessile, subhemispherical, then partly expanded, black; hymenium concave, fuliginous; margin incurved; asci broadly clavate; sporidia 8, elongate-oblong or oblong-fusiform, 6- to 7-guttulate, becoming

pseudo-6-septate, straight or curved, 25—45 × 4—7μ; paraphyses filiform, slender.

On dead wood of *Lonicera*.

Cups 300μ broad.

Name—*Lonicera*, the genus to which the honeysuckle belongs; on honeysuckle.

Darnaway, N.B.!

12. *Patellaria connivens*. (Fries.)

Gregarious, minute, innate; hymenium depressed, black or rufescent; margin thin; when dry compressed and difformed; asci broadly clavate; sporidia 8, oblong-fusiform, 6 to 8-guttulate, at length pseudo-septate, 14—26 × 4—6μ; paraphyses filiform, very slender, branched from the base, abundant.

Peziza connivens—Fries, "Sys. Myco.," ii. p. 151; Nyl., "Pez. Fenn.," p. 65; Karst., "Mon. Pez.," p. 167; Phil. and Plow., "Grevillea," x. p. 69. *Patellaria connivens*—Karst., "Myco. Fenn.," 234.

Exs.—Karst., "Fung. Fenn.," 641.

On dead wood of willow. Karsten says alder, poplar, and birch also.

Cups about 500 to 800μ broad. The wood is tinged from white to green on the spot where it grows.

Name—*Conniveo*, to wink; from the closing up of the margin.

Shrewsbury!

13. *Patellaria subtectum* (nov. sp.). Cooke.

Singly or in clusters, appearing first as black conical points emerging through the layers of bark, in which condition no fructification is seen; at length the conical points expand into lens-shaped or *Lecidea*-like discs, which are immarginate and black, about $\frac{1}{4}$ of a line broad or less; substance soft and fragile; asci broadly clavate, narrowed into a slender stem; sporidia 8, oblong-elliptic, 3 to 4-guttulate, at length 1 to 3-septate, 20—24 × 5—6μ; paraphyses filiform, slender. Stylospores in the same hymenium, elongated, cylindrical, 5 to

8-guttulate, curved, on short sporopores seated amongst the asci, 30—50 × 5μ.

On inner bark of *Cistus laurifolius*. June.

Name—*Sub*, under, *tectum*, roof; concealed by the bark.

Royal Gardens, Kew! (Dr. M. C. Cooke).

C. SPORIDIA SUBCLAVATE.

(*a*) *Hyaline septate.*

14. *Patellaria atrata.* (Hedw.)

Subcoriaceous, patelliform, sessile, plane, black; margin swollen; hymenium subpruinose; asci cylindraceo-clavate; sporidia subclavate, 5 to 7-septate, 35—46 × 6μ; paraphyses filiform, adherent, black, and thickened at the apices.

Lichen atratus—Hedw., "Mus. Frond.," ii. p. 61, t. 21, f. A. *Peziza patellaria*—Pers., "Syn. Fung.," p. 670; "Myco. Eur.," p. 306; D. C., "Flo. Fr.," ii. p. 76; A. and S., p. 341; Nees, "Sys.," f. 265. *Peziza atrata*—Wahl., "Ups.," p. 466; Fries, "Sys. Myco.," ii. p. 160; "Eng. Flo.," v. p. 208; Cooke, "Handbk.," p. 716. *Lecanidion atrum*—Rabh., "Handb.," p. 342; Fckl., "Symb. Myco.," p. 266; Pat., p. 31, f. 72.

Exs.—Rabh., "Fung. Eur.," 33; Fckl., "F. Rh.," 1118; Phil., "Elv. Brit.," 90; Cooke, "Fung. Brit.," ed. ii. 194; Roumg., "Fung. Gal.," 828.

On dead wood.

Cups about ½ a line broad. Firm, orbicular; margin prominent.

Name—*Ater*, black.

King's Lynn! (Mr. C. B. Plowright). Conway, North Wales! (Rev. W. A. Leighton). Trefriw, North Wales! Attingham, Shrewsbury!

15. *Patellaria clavispora.* B. and Br.

Scattered, sessile, when young nearly globose, when older expanding, plane, obtusely margined, rather irregular, pitch-brown; white within; asci cylindraceo-

clavate; sporidia 8, clavate or clavate-fusiform; 3 to 6-septate; 30 × 5μ; paraphyses filiform, the summits branched, moniliform, brown, somewhat adherent. (Plate XI. fig. 70.).

Patellaria clavispora—B. and Br., "Ann. Nat. Hist.," No. 774; Cooke, "Handbk.," No. 2166.

On twigs of privet.

Cups $\frac{1}{4}$ to $\frac{1}{2}$ a line broad. Externally like *P. atrata*, but differing in the asci, sporidia, and paraphyses.

Name—*Clava*, a club, σπόρος, seed; from the shape of the sporidia.

Lucknam, Wiltshire!

16. *Patellaria macrospora.* (Fckl.)

Gregarious, minute, sessile, at first subhemispherical, then nearly plane, black, glabrous, margin cinereous; asci clavate; sporidia 8, clavate or fusiform, straight or curved, guttulate, becoming 3-septate, 15—20 × 2—3μ; paraphyses filiform, branched, more or less adherent, summits subglobose, brown.

Durella macrospora—Fckl., "Symb. Myco.," 281. *Peziza nigro-punctata*—Gerard.

Exs.—Phil., "Elv. Brit.," 131.

On oak-wood.

Name—μακρός, large, σπόρος, seed; large-spored.

North Wales!

D. SPORIDIA FUSIFORM OR LINEAR-FUSIFORM.

(*a*) *Hyaline, simple.*

17. *Patellaria rubro-tingens.* B. and Br.

Contiguous, forming crust-like, elongated groups; cups minute, hemispherical, concave, black, rugose; margin tinged with dark reddish-brown, serrated, incurved; asci clavate; sporidia 8, narrowly fusiform, 3 to 4-guttulate, 8—14 × 2μ; paraphyses filiform, rather stout.

Patellaria rubro-tingens—B. and Br. in Herb. Berk.

On oak.

Cup about 1 line broad, forming a continuous layer, but sometimes separate.

Name—*Ruber*, red, *tingo*, to dye.

Batheaston! (Mr. C. E. Broome).

18. *Patellaria litoralis.* Phil. and Plow.

Cups scattered or crowded, minute, black; hymenium fuliginous-brown, concave; margin incurved, serrated; asci cylindraceo-clavate; sporidia 8, linear-fusiform, 3 to 6-guttulate, straight or a little bent, 25 × 2μ; paraphyses filiform, slender.

Peziza (*Mollisia*) *litoralis*—Phil. and Plow., "Grevillea," iv. p. 121, t. 62, fig. 4; Steven., "Myco. Scot.," p. 324.

On dead wood washed up from the loch.

Cups about 500 to 800 lines broad; externally granular.

Name—*Litus*, the shore; found on the shore of the loch.

Lynwilg, N.B.! (Rev. Dr. Keith).

(*b*) *Hyaline, septate.*

19. *Patellaria maura*—Phil. and Plow.

Cups sessile, scattered, at first globose, becoming patellate, fuliginous-black; margin raised, crenulate; asci cylindraceo-clavate; sporidia 8, narrowly elongate-fusiform or subcylindrical, straight or curved, 30—38 × 5—6μ; paraphyses filiform, summits hooked.

Peziza (*Mollisia*) *maura*—Phil. and Plow., "Grevillea," iv. p. 122, t. 62, f. 3.

On dead wood. Autumn.

Cups about ½ a line broad. The margin is torn; the asci have a narrow elongated base, and the paraphyses are hooked or even curled at the summit.

Name—*Maurus*, a Moor; dusky-coloured.

Dinmore, Herefordshire!

20. *Patellaria atro-vinosa.* Blox. (not Berk. and Rav.).

Gregarious or crowded, minute, round or of irregular outline, almost black, distinctly margined; margin vinous-purple; asci elongate-clavate; sporidia 8, tinged with green, fusiform or linear-fusiform, pseudo-3-septate, straight or curved, 17—20 × 3—4μ; paraphyses filiform, slender, branched.

Patellaria atro-vinosa—Blox., MS.; Curr., "Linn. Trans.," xxiv. p. 155, t. 25, f. 31; B. and Br., "Ann. Nat. Hist.," No. 10; Cooke, "Handbk.," No. 2171.

On bark.

Cups $\frac{1}{4}$ to $\frac{1}{2}$ a line broad. The disc is blackish-brown; the margin lighter brown, and somewhat prominent.

Name—*Ater*, black, *vinosus*, colour of red wine.

Gopsal, near Twycross! (Rev. A. Bloxam).

21. *Patellaria atro-alba.* Cooke.

Gregarious or scattered, small, sessile, at length plane, black; disc white; sporidia fusiform, 7-septate, hyaline.

Cooke's "Handbk.," No. 2168.

On decorticated sticks.

Variable in size, usually gregarious, but always small; readily distinguished from its allies by the white disc; sporidia broadly fusiform, ·0013 inch (30μ) long (Cooke).

E. SPORIDIA FILIFORM.

(*a*) *Hyaline, septate.*

22. *Patellaria vermifera* (nov. sp.).

Scattered, sessile, very minute, cupulate, then patelliform, black, glabrous; margin entire; asci broadly clavate; sporidia 8, narrowly cylindrical, vermiform, multiguttulate, 30—35 × 3μ; paraphyses slenderly filiform, abundant, branched.

On dead branches of decorticated holly.

Cups about 500μ broad.

Name—*Vermis*, a worm, *fero*, to bear; from the shape of the sporidia.

Dolgelly, North Wales!

Doubtful Species.

23. *Patellaria citrina* (Cheval.). B. and Br.

Cups plane; externally pallid; hymenium lemon-coloured; asci clavate; sporidia filiform.

Patellaria citrina—B. and Br., "Ann. Nat. Hist.," No. 583; Berk., "Outl.," p. 373. *Ascobolus citrinus*—Cheval., "Flo. En. Par.," i. t. 31; Cooke, "Handbk.," 2165.

On rose-twigs lying in a running stream. April.

Our plant answers exactly in outward appearance to that of Chevallier, having a broad, flat, yellow hymenium, with a pale border. The asci are clavate, and contain long filiform sporidia. We suspect that these are what M. Chevallier calls asci, considering the included granules as sporidia, exactly as Madame Libert has done in *Stictis Sesleriæ* (B. and Br.).

Penllergare, near Swansea (Mr. M. Moggridge).

The affinity of this species is somewhat doubtful, and there being but a single cup in Mr. Berkeley's herbarium, it cannot be examined without the risk of destroying it.

24. *Patellaria melazantha.* Fries.

Sessile, waxy, dry, patellate; externally approaching black; margin very entire; hymenium yellowish.

Peziza melazantha—Fries, "Sys. Myco.," ii. p. 150. *Patellaria melazantha*—Fries, "Summa Veg. Scan.," p. 366. *Peziza melanotheja*—Fries in Cooke's "Handbk.," No. 2123 (?).

There is some confusion in Fries's "Sys. Myco." with regard to this name, the author having named two different plants by it. Whether both have occurred in Britain is doubtful.

Genus II.—Heterosphæria. Grev.

Perithecium sessile, globose-depressed, umbilicate above, at length open and irregularly torn, thin, coriaceous, black; disc thick, placentiform; sporidia 8.

Pycnidia similar to the above; stylospores slenderly fusiform, curved. (Plate XI. fig. 71.)

Name—ἕτερος, different, σφαῖρα, a sphere; different from the normal *Sphæria*.

1. *Heterosphæria patella* (Tode). Grev.

Erumpent, sessile, free, at first more or less olivaceous, at length black, even or striate; disc depressed, rarely open, dirty white, and then crowned with a toothed border; sporidia biseriate, oblong, rounded at the ends, slightly curved, mostly uniseptate, when mature triseptate, 13—16 × 3—4μ; paraphyses filiform.

Pycnidia similar to the above, and more generally found; the stylospores slenderly fusiform, acute at both ends, 25—30 × 3·5μ; sterigmata short, filiform, sometimes branched.

Asci and stylospores sometimes found associated on the same disc. (Plate XI. fig. 71.)

Heterosphæria Patella—Grev., t. 103; Fries, "Elench.," ii. p. 133; Berk., "Outl.," p. 379; Cooke, "Handbk.," No. 2275; Tul., "Select. Fung. Carp.," iii. p. 174, t. 18, f. 16–22; Karst., "Myco. Fenn.," p. 222; Gill., "Champ.," p. 188. *Sphæria penetrans*, a. *patella*—Tode, "Fung. Meckl.," ii. p. 45, f. 121. *Sphæria patella*—Pers., "Syn. Fung.," p. 76; Fries, "Sys. Myco.," ii. p. 511. *Peziza fimbriata*—Chaill., "Sec. Fr." *Peziza Chailletii*—Pers., "Myco. Eur.," i. p. 288. *Phacidium patella*—Fries, "Elench.," ii. pp. 133, 134; "Eng. Flo.," v. p. 291; Rabh., "Krypt. Flo.," i. p. 160. *Tympanis patella*—Wallr., "Crypt. Flo.," p. 425.

Exs.—Fries, "Scl. Suec.," No. 369; Moug. and Nest., No. 485; Desm., "Crypt. Fr.," ed. i. No. 215, and ed. ii. No. 415; Berk., 289; Rabh., "Herb. Myco.," ed. ii. 446, 447;

"Fung. Eur.," 839; Karst., "Fung. Fenn.," 930; Cooke, "Fung. Brit.," 276.

On dead herbaceous stems.

Name—*Patella*, a saucer.

Common!

Genus III.—Laquearia. Fries.

Disc waxy, persistent, without any hypothecium, but covered with a horny, coriaceous, dimidiate, superior, deciduous excipulum; mouth contracted (Berk., "Outl.," p. 373). (Plate XI. fig. 72.)

Name—*Laquear*, a roof; from its peculiar form.

1. *Laquearia sphæralis.* Fries.

Erumpent, hemispherical, brown-black, urceolate; mouth contracted, entire; disc plane, black; asci oblong, sessile; sporidia minute, oblong-elliptic, hyaline, simple. (Plate XI. fig. 72.)

Laquearia sphæralis—Fries, "Summa Veg. Scan.," p. 366; Berk., "Outl.," p. 373; Fckl., "Symb. Myco.," p 250; Cooke, "Handbk.," No. 2182. *Stictis Sphæralis*—Fries, "Sys. Myco.," ii. p. 194; "Eng. Flo.," v. p. 213.

Exs.—Fckl., "F. Rh.," No. 2066.

On dead, decorticated branches of the ash. Winter.

Introduced entirely on the authority of Mr. Purton; I have seen no specimens (M. J. Berkeley, *l. c.*).

Order VII.—STICTEÆ. Fries.

Receptacle nearly obsolete, immersed in the matrix; hymenium even, determinate, orbicular or elliptic, margined by the matrix or a ring of its own; asci cylindrical or clavate; sporidia elliptic, fusiform or elongate-filiform. (Plates XI., XII. figs. 73–75.)

The excipulum is reduced to a thin membranaceous layer, which is immersed in the matrix, and adnate to it.

In *Propolis* there is a thin subhymenial tissue, but in *Schmitzomia* and *Stictis* this is all but obsolete.

Inhabiting dead bark, wood, herbaceous stems, etc.

Name—From the typical genus.

ARRANGEMENT OF THE GENERA.

I. *Propolis.* Fries.
II. *Schmitzomia.* Fries.
III. *Stictis.* Fries.

KEY TO THE GENERA.

Hymenium immersed, waxy, plane; sporidia oblong or elliptic	*Propolis.*
Hymenium deeply immersed; sporidia elongate-filiform	*Schmitzomia.*
Hymenium deeply immersed; sporidia not filiform	*Stictis.*

GENUS I.—PROPOLIS. Fries, "Elench.," p. 372.

Hymenium irregular, immersed, waxy, plane, surrounded by an accessory margin; excipulum indistinct or absent; asci cylindraceo-clavate; sporidia 4 or 8, oblong or oblong-elliptic; paraphyses filiform, adherent. (Plate XI. fig. 73.)

Excipulum membranaceous, immersed, adnate to the matrix, at length erumpent, and splitting in a stellate manner, the matrix often forming a second margin. The subhymenial tissue is more developed than in the two succeeding genera, and the hymenium is plane or concave, rarely if ever urceolate; asci clavate; sporidia elliptic or oblong-elliptic.

On dead wood and bark.

Name—*Propolis*, bee-glue, which the hymenium is like.

ARRANGEMENT OF THE SPECIES.

A.	Sporidia elliptic	species 1
B.	Sporidia oblong	„ 2–4
C.	Sporidia fusiform	„ 5
D.	Sporidia cylindrical	„ 6, 7

KEY TO THE SPECIES.

Hymenium black	*pyri.*
Hymenium greyish-green	*angulosa.*
Hymenium reddish; margin golden-yellow	*chrysophæa.*

	Hymenium golden-yellow	*Lecanora.*
	Hymenium whitish	1
1.	Margin spurious; disc rosy-white	*rhodoleuca.*
	Margin laciniate; disc farinaceous-white	*versicolor.*
	Margin laciniate; on rose-branches	*Rosæ.*

A. SPORIDIA ELLIPTIC.

1. *Propolis Lecanora.* (Schum.)

Scattered, gregarious or confluent, erumpent, surrounded by the lacerated bark, at first closed, globose-depressed, then open, patelliform; the true margin fimbriate; hymenium golden-yellow, becoming brown; flesh at first soft, at length firm; asci cylindraceo-clavate; sporidia 8, elliptic or oblong-elliptic, with one or two large guttæ, 25 × 12μ; paraphyses filiform, slightly enlarged at the apices, adhering in a yellow glutine.

Pycnidia intermixed with the above, occupying the sides or summit of the same stroma, disc-shaped; stylospores oblong or oblong-elliptic, straight or slightly curved, issuing through the narrowly perforated epidermis; sterigmata branched, rather stout.

Peziza Lecanora—Schm. and Kunz., exs. 174. *Stictis Lecanora*—Fries, "Sys. Myco.," ii. p. 193; and "Summa Veg. Scan.," p. 373; Wallr., "Flo. Germ.," ii. p. 443; B. and Br., "Ann. Nat. Hist.," No. 1172; Cooke, "Handbk.," No. 2227. *Peziza ocellata*—Pers., "Syn. Fung.," p. 667; and "Myco. Eur.," i. p. 313. *Stictis ocellata*—Fries, "Sys. Myco.," ii. p. 193; "Summa Veg. Scan.," p. 373; Tul., "Select. Fung. Carp.," iii. p. 128, t. 18, f. 1–11; Gill., "Champ.," figure only. *Propolis Lecanora* and *P. Populi*—De Not., "Disc.," p. 10.

Exs.—Schm. and Kunze, No. 174; Desm., "Crypt. Fr.," ed. i. No. 869, and ed. ii. No. 69; Rabh., "Herb. Myco.," ed. ii. No. 519; "Fung. Eur.," ii. No. 457, 787; Karst., "Fung. Fenn.," 555; Winter, "Fungi Eur.," 2641; Kunz., "Fung. Sel.," 366.

On various species of *Salix*, and on *Populus*.

Disc about ½ a line broad, circular or oblong, surrounded by the torn bark, which forms a fringe. The colour is a reddish-yellow or dark brown.

Name—*Lecanora*, a genus of lichens.
Jedburgh (A. Jerdon). Oxford! (Baxter).

B. SPORIDIA OBLONG.

2. *Propolis pyri.* (B. and Br.)

Gregarious or confluent, erumpent, orbicular; hymenium plane or concave, black, surrounded by a laciniate margin; asci cylindraceo-clavate; sporidia 8, oblong or oblong-elliptic, with 1 or 2 large guttæ, slightly tinted brown, 15—20 × 8μ; paraphyses filiform, slender, adherent in a dark purple gelatine.

Stictis Lecanora (Schum.) var. *pyri*—B. and Br., "Ann. Nat. Hist.," No. 1624, t. 11, f. 7; "Grevillea," v. p. 62.

Exs.—Phil., "Elv. Brit.," No. 148.

On bark of pear-trees.

Disc about $\frac{1}{2}$ a line broad. The sporidia are smaller than in *S. Lecanora*, the paraphyses slenderer, and the hymenial gelatine is purple, not yellow.

Name—*Pyrus*, the genus to which the pear belongs.

Shrewsbury! Sutton Coldfield, Warwick! (Mr. W. B. Grove).

3. *Propolis rhodoleuca.* (Sommf.)

At first immersed, then erumpent, ovate, plane, rosy-white, pruinose, yellow within, surrounded by a spurious margin; asci broadly clavate; sporidia 8, oblong or oblong-elliptic, often plane on one side, becoming 1-septate, 17—20 × 7—10μ; paraphyses filiform, slender.

Stictis rhodoleuca—Sommf., "Lapp.," p. 198; Fries, "Sys. Myco."; "Elench.," ii. p. 26.

On cones of *Pinus sylvestris.*

Cups 1 to 2 lines long. Much resembling *P. versicolor*, from which it differs little except in colour.

Name—ῥόδον, a rose, λευκός, white; rose-white.

In the late Mr. F. Currey's herbarium, now at Kew!

Var. *Strobilina.* (Desm.)

Solitary or gregarious, angular, nearly circular or oblong, plane, white within; hymenium milk-white,

farinose, becoming spadiceous; asci clavate; sporidia 8, oblong, obtuse, slightly bent, with 2, 3, or even 4 guttæ, 15μ long.

Stictis versicolor, Fries, var. *Strobilina*—Desm., "Ann. Sc. Nat.," 1842, p. 52.

Exs.—Desm., "Crypt. Fr.," ed. i. No. 1316, and ed. ii. No. 716.

On cones of *Pinus sylvestris*.

Cups $\frac{1}{2}$ a line broad; when elongated they may be $1\frac{1}{2}$ lines long.

Desmaziere remarks that there is no danger of confounding this with *P. rhodoleuca*, which has a rosy-white disc, is yellow within, and has didymus (uniseptate) sporidia; but the probability is that they are only conditions of the same plant, and in the estimation of some would both be regarded as not specifically distinct from *P. versicolor*.

Name—*Strobilos*, a pine-cone.

4. *Propolis versicolor*. Fries.

Immersed, suboblong, plane; margin spurious, laciniate; hymenium at length farinaceous; asci broadly clavate; sporidia oblong, rounded at the ends, slightly curved, with 2 or more guttæ, 24—30 × 7—9μ; paraphyses filiform. (Plate XI. fig. 73.)

Stictis Propolis versicolor—Fries, "Sys. Myco.," ii. p. 198; Cooke, "Handbk.," No. 2230; Corda, "Icon.," ii. t. 15, f. 133. *Propolis versicolor*—Fries, "Summa Veg. Scan.," p. 372; Gill., "Champ.," p. 182, c. i.; Pat., p. 30, f. 70. *Cryptomyces versicolor*—"Eng. Flo.," v. p. 214. *Propolis faginea* (Schrad.)—Karst., "Myco. Fenn.," p. 244.

Exs.—Fries, No. 276; Fckl., "F. Rh.," 1109; Rav., "Fung. Am.," 315, 316; Roumg., "Fung. Gal.," 1962; Cooke, "Fung. Brit.," ed. ii. 463.

On pales, chips, sticks, etc.

Fries names four varieties of this species, but, as no regard was paid by him to the sporidia, it would be vain to attempt any definition of these.

Name—*Versicolor*, changing colour.
Common!

C. SPORIDIA FUSIFORM.

5. *Propolis chrysophæa.* (Pers.)

Scattered, erumpent, orbicular; hymenium concave, reddish; border rather thickened, golden yellow; asci cylindraceo-clavate or cylindrical; sporidia 8, fusiform, simple, 9—11 × 2μ; paraphyses filiform, slender, sometimes branched in the upper part, and slightly thickened at the apices.

Peziza chrysophæa—Pers., "Syn. Fung.," p. 674; "Icon. Pict.," p. 17, t. 8, f. 1, 2. *Stictis chrysophæa*—Pers., "Myco. Eur.," p. 335; B. and Br., "Ann. Nat. Hist.," No. 966, t. 16, f. 19; Cooke, "Handbk.," No. 2226.

On wych-elm.

About $\frac{1}{2}$ to $\frac{3}{4}$ of a line broad.

Name—χρυσός, gold, φαίος, dusky; dingy golden.

Batheaston! (Mr. C. E. Broome in Berkeley's herb., Kew.)

D. SPORIDIA CYLINDRICAL.

6. *Propolis Rosæ.* Fckl.

Disc erumpent, nearly convex, white, size and form variable; asci cylindrical, stipitate; sporidia biseriate, cylindrical, bent, obtusely rounded at each end, 2 guttæ, hyaline, 24—26 × 7—8μ; paraphyses filiform, same length as the asci.

Propolis Rosæ—Fckl., "Symb. Myco.," p. 254.

Exs.—Fckl., "F. Rh.," 1276.

The sporidia in my specimen become 2 pseudo-septate; asci 118 × 12μ. Fuckel regards *Exidia saccharina*, Fries, as the conidial stage of this species.

On fallen branches of *Rosa canina.*

Name—*Rosa*, the genus to which *Rosa canina* belongs, on which it is found.

Trefriw, North Wales!

7. *Propolis angulosa.* Karst.

Gregarious, immersed and innate in the parenchyma of the bark, primarily covered, then seated on the epidermis, at first tinted with a somewhat blue colour, erumpent, often encircled by four obtuse triangular lacinæ; angular, or rarely angular or subrotund, plane; hymenium greyish-green, mealy; asci elongate-clavate; sporidia 8, elongate, curved, somewhat yellowish-green, hyaline, 16—23 × 3—4μ; paraphyses not very distinct.

Propolis angulosa—Karst., "Myco. Fenn.," p. 244.

On branches of *Salix.*

About $\frac{1}{2}$ to $\frac{3}{4}$ of a line broad.

Name—*Angulosus*, angular.

Trefriw, North Wales!

Genus II.—Schmitzomia. Fries.

Disc immersed, encircled by a dehiscent, substellate, distinct, suberose, friable ring; asci cylindrical, slender elongated; sporidia 8, filiform. (Plate XII. fig. 74.)

The excipulum is reduced in this genus to a very thin membrane, which is wholly adnate to the matrix, at first closed, then open; the mouth encircled by a superficial, more or less persistent, usually white ring. The asci are very long and slender, splitting at their summits, allowing the still slenderer, nearly equally long, filiform sporidia to escape. *S. Berkeleyana* is sometimes superficial.

Inhabiting dead wood, herbaceous stems, etc.

Name—After J. Schmitz, and *μυία*, a tribute of respect.

Arrangement of the Species.

A. Hymenium blackish	species	1, 2
B. Hymenium ochraceous or pallid	"	3
C. Hymenium testaceous or orange-yellow	"	4
D. Hymenium whitish or bluish-white	"	5, 6

Key to the Species.

Margin laciniate, radiating	*radiata.*
Margin entire, yellowish-green	*Berkeleyana.*
Margin entire	1

1. On clematis: minute .. .. *atro-alba.*
   On honeysuckle: larger .. .. *annulata.*
   On *Arundo phragmites*: sporidia multiseptate .. *arundinacea.*
   On pine-leaves .. .. *nivea.*

A. HYMENIUM BLACKISH.

1. *Schmitzomia atro-alba* (nov. sp.). Phil. and Plow.

Scattered, orbicular, urceolate, at first closed, then open; margin entire, narrow, white, soon falling off; hymenium nearly black; asci cylindrical; sporidia 8, filiform, 90 × 1μ; paraphyses filiform, slender. (Plate XII. fig. 74.)

On clematis branches.

About 30 to 60μ broad. The small size and blackish disc separate it from other British species.

Name—*Ater*, black, *albus*, white; from the black hymenium and white margin.

Dinmore, Herefordshire! (Mr. C. B. Plowright).

2. *Schmitzomia Berkeleyana.* (D. R. and Lév.)

Scattered or somewhat scattered, erumpent, superficial, orbicular, nearly plane or patelliform, almost yellow-greenish, at length discoloured, growing pale or cinereous, pale or white within, pulverulent; margin scarcely or not at all exserted, very entire; hymenium olivaceous or nearly black, also primarily farinose; asci cylindrical; sporidia filiform, septate, 150—200 × 1·5—2μ; paraphyses numerous, filiform.

Stictis Berkeleyana—Dr. and Lév., "Flo. Alger.," t. 89, f. 8; Gill., "Champ.," p. 180. *Schmitzomia decipiens*—Karst., "Symb.," p. 253; "Myco. Fenn.," p. 240.

Exs.—Moug. and Nest., 1346.

On dead stems of *Artemisia vulgaris.*

North Wootton! (Mr. C. B. Plowright). Sandy Lane, Bristol! (Mr. C. Bucknall).

B. HYMENIUM OCHRACEOUS OR PALLID.

3. *Schmitzomia annulata.* (Cooke and Phil.)

Gregarious or scattered, orbicular, urceolate, margin snow-white, entire, annulate; hymenium ochraceous or

pallid; asci cylindrical, long; sporidia filiform, somewhat flexuose, 160—180 × 1μ; paraphyses filiform, very slender.

Stictis annulata—Cooke and Phil., "Grèvillea," ix. p. 8.

On honeysuckle.

Cup 300 to 500μ broad; asci 170 × 7μ.

Name—*Annulatus*, ringed.

Oswestry, Salop!

C. HYMENIUM TESTACEOUS OR ORANGE-YELLOW.

4. *Schmitzomia radiata.* (Linn.)

Gregarious or scattered, immersed, urceolate, at first closed, then open; margin reflexed and divided into radiating obtuse laciniæ; hymenium testaceous or nearly orange-yellow; asci cylindrical; sporidia 8, filiform, at length multiseptate, 150—250 × 2·5—3μ; paraphyses numerous, filiform, slender.

Lycoperdon radiatum—Linn., "Spec. Plant." *Sphærobolus rosaceus*—Tode, "Fung. Meckl.," i. p. 44, t. 7, f. 58. *Stictis radiata*—Pers., "Obs.," ii. p. 73; "Syn. Fung.," p. 674; "Myco. Eur.," i. p. 336; Fries, "Sys. Myco.," ii. p. 194; Wallr., "Flo. Germ.," ii. p. 144; "Eng. Flo.," v. p. 213; Grev., t. 227; Cooke, "Handbk.," No. 2220; Gill., "Champ.," p. 179. *Peziza marginata*—Sow., t. 16.

Exs.—Berk., No. 70; Baxt., 80; Karst., "Fung. Fenn.," 769; Rehm, "Asco.," 122; Winter, "Fungi Eur.," 2735.

On wood, twigs, etc.

Name—*Radio*, to shed beams; from the radiating margin.

Appin (Capt. Carmichael). Near Manchester! (Mr. Brittain).

D. HYMENIUM WHITISH OR BLUISH-WHITE.

5. *Schmitzomia arundinacea.* (Pers.)

Scattered, immersed, orbicular, urceolate, at first closed, then open; margin prominent, entire or nearly entire, whitish pulverulent; hymenium whitish or bluish-white; asci cylindrical, very long; sporidia 8, filiform,

multiseptate, 230—240 × 1·5—2μ; paraphyses filiform, very slender.

Stictis arundinacea—Pers., "Myco. Eur.," i. p. 336; Fries, "Sys. Myco.," ii. p. 195; "Summa Veg. Scan.," p. 373; Gill., "Champ.," p. 179. *Stictis graminum*—Desm. (?).

On *Phalaris arundinacea*, Linn.

About $\frac{1}{4}$ of a line broad.

Name—*Arundinacea*, the specific name of the grass on which it is found.

Towyn, North Wales!

6. *Schmitzomia nivea.* (Pers.)

Scattered, immersed, at first covered by the whitened epidermis, which at length splits longitudinally and falls away, revealing the elliptic, pallid hymenium; asci cylindrical or cylindraceo-clavate; sporidia 8, linear, thickened near one end, pointed, multinucleate, 100 × 3μ; paraphyses filiform, slender, adherent.

Stictis nivea—Pers., "Myco. Eur.," iii. p. 339; Fries, "Sys. Myco.," ii. p. 196; Berk., "Ann. Nat. Hist.," No. 167; Cooke, "Handbk.," No. 2223. *Propolis nivea*—Fries, "Summa Veg. Scan.," 372. *Schmitzomia nivea*—De Not., "Disco.," 8. *Nœmacyclus pinastri*—Fckl., "Symb. Myco.," Nacht ii. p. 50.

Exs.—Desm., No. 763; Moug. and Nest., No. 1095; Rabh., "Herb. Myco.," ii. 712; Rabh., "Fung. Eur.," 812; Fckl., "F. Rh.," 1110; Phil., "Elv. Brit.," 149; Cooke, "Fung. Brit.," ii. 661; Sacc., "Myco. Ven.," 1200; "Erb. Crit. Ital.," ii. 890; Roumg., "Fung. Gal.," 542.

On pine-leaves. Common.

Name—*Niveus*, snow-white.

Near Shrewsbury!

Genus III.—Stictis. Pers.

Disc orbicular, immersed, at first urceolate, closed, then open, marginate, persistent; sporidia elliptic, oblong-elliptic, fusiform or linear. (Plate XII. fig. 75.)

As in the preceding genus, the excipulum is membranaceous, adnate to the matrix, more or less immersed, orbicular or sometimes a little elongated, opening at the top, but mostly without the distinct, friable ring of the preceding; sporidia elliptic, oblong-elliptic, fusiform or linear, often pseudo-septate.

On dead wood, herbaceous stems, etc.

Name—στικτός, pricked; like punctures in the wood.

ARRANGEMENT OF THE SPECIES.

A.	Sporidia elliptic	species 1–3
B.	Sporidia clavate	„ 4
C.	Sporidia fusiform	„ 5–8
D.	Sporidia doubtful	„ 9

KEY TO THE SPECIES.

	Hymenium urceolate	1
	Hymenium somewhat superficial	3
1.	Hymenium black: on grass	*graminum.*
	Hymenium greyish-black: on *Cladonia*	*lichenicola.*
	Hymenium reddish-brown	*punctiformis.*
	Hymenium pallid or yellowish	2
2.	Sporidia simple, fusiform	*Fagicola.*
	Sporidia 3 to 5-septate	*pallida.*
3.	Hymenium some shade of brown	4
	Hymenium blackish: on wood	*microstoma.*
4.	Sporidia clavate	*pteridina.*
	Sporidia fusiform; cups arranged in linear series	*seriata.*
	Sporidia fusiform; cups scattered, resembling an *Hysterium*	*hysterioides.*

A. SPORIDIA ELLIPTIC.

1. *Stictis lichenicola.* Mont.

Erumpent, between fleshy and waxy, cupuliform; hymenium grey-black, nearly plane; margin obtuse, blackish, cinereous, cracking in a stellate manner; asci cylindrical; sporidia elliptic or obovate, with many guttæ, then septate or fenestrate.

Stictis lichenicola—Mont., "Ann. Sc. Nat.," 1836, p. 281, t. 13, f. 3; Berk., "Ann. Nat. Hist.," No. 166; Cooke, "Handbk.," No. 2224; Phil. and Plow., "Grevillea," iv. p. 123.

On *Cladonia pyxidata.*

Mr. Berkeley expressed his doubt whether this was a

true fungus many years ago, since which time little or no light has been thrown upon its affinity.

Name—*Lichen*, a lichen, *colo*, to inhabit.

Wareham (Rev. M. J. Berkeley). Isle of Skye (Mr. C. Babington). Ireland!

2. *Stictis pallida.* Pers.

Scattered or gregarious, sometimes two or more coalescent, immersed, elliptic or circular; hymenium yellowish; mouth at first connivent, then open; asci clavate; sporidia 8, elliptic or subclavate, hyaline, 3 to 5 pseudo-septate, 14—17 × 5—6μ; paraphyses filiform, slender, adherent. (Plate XII. fig. 75.)

Stictis pallida—Pers., "Obs.," ii. p. 74, t. 6, f. 7; "Myco. Eur.," i. p. 338; Fries, "Sys. Myco.," ii. p. 196; "Summa Veg. Scan.," p. 373; "Eng. Flo.," v. p. 213; Karst., "Myco. Fenn.," p. 243; Cooke, "Handbk.," No. 2221; Pat., p. 212, f. 490. *Cryptodiscus pallidus*—Corda., "Icon. Fung.," ii. p. 37, t. 15, f. 129.

Exs.—Fries, "Scl. Suec.," No. 275; Karst., "Fung. Fenn.," 262.

On decorticated wood.

In an authentic specimen in Fries's "Scl. Suec.," No. 275, the receptacles are mostly elliptic, $\frac{1}{4}$ to $\frac{1}{2}$ a line long; the wood immediately surrounding them is whitish.

Name—*Pallidus*, pale.

Appin (Carmichael).

3. *Stictis microstoma.* Carm.

Very minute, punctiform, prominent, blackish, opening with a minute round or subelliptic orifice; asci cylindraceo-clavate; sporidia 8, oblong-elliptic, 3-septate, hyaline, granular within, 13—15 × 3μ; paraphyses filiform, branched.

Stictis microstoma—Carm., "Eng. Flo.," v. p. 213; Berk., "Outl.," p. 375; Cooke, "Handbk.," No. 2222.

On wood.

Scattered, at first nearly white, with a minute orifice, round which it gradually assumes a darker hue, and at

length, under a high magnifier, appears, when moist, of a subolivaceous black, resembling a minute *Sphæria* (M. J. Berkeley). Mouth 200 to 400μ broad; the disc when moistened is pale yellowish brown.

Name—*μικρός*, small, *στόμα*, the mouth; from the small mouth.

Appin (Capt. Carmichael).

B. SPORIDIA CLAVATE.

4. *Stictis pteridina.* Phil. and Buck.

Scattered, slightly immersed, circular or elongated, irregular, open; hymenium pallid-brown, not deeply depressed; margin membranaceous; asci broadly clavate; sporidia 8, biseriate, clavate or clavate-fusiform, 6 to 7 times pseudo-septate or muriform, 28—44 × 5—9μ; paraphyses filiform, adherent.

Stictis pteridina—Phil. and Buck. in Bucknall's "Fung. Bristol," pt. vi. p. 5, t. 1, f. 6.

On stems of *Pteris aquilina.*

Name—*Pteris*, the genus of ferns on one of which it grows.

Near Bristol! (Mr. Cedric Bucknall).

C. SPORIDIA FUSIFORM.

5. *Stictis hysterioides.* Desm.

Immersed, closed, hysteriform, then erumpent, prominent, open, ovate-oblong or suborbicular; border brown-black, subgranulate; hymenium waxy, tawny or rufus; asci cylindraceo-clavate; sporidia 8, oblong, obtuse or fusiform, with 4 guttæ, 16 × 3—4μ; paraphyses filiform.

Stictis hysterioides—Desm., "Ann. Sc. Nat.," 1843, p. 365; B. and Br., "Ann. Nat. Hist.," No. 314; Cooke, "Handbk.," No. 2225. *Propolis hysterioides*—Fckl., "Symb. Myco.," p. 255.

Exs.—Berk., No. 308; Moug. and Nest., No. 1242; Roumg., "Stirpes," 337.

On dead leaves of *Carices.*

Name—*Hysterium*, a genus of fungi, εἶδος, likeness; like a *Hysterium*.

Thame (Dr. Ayres). Rudloe, Wiltshire (Mr. C. E. Broome).

6. *Stictis seriata*. Lib.

Innate, punctiform, orbicular, plane or but slightly concave, disposed in approximate series, rubro-fuscous; asci linear-fusiform or subclavate; sporidia minute, oblong or fusiform (?); paraphyses filiform, slender, adherent.

Stictis seriata—Lib., "Crypt. Ard.," fasc. iii. No. 233; Phil. and Plow., "Grevillea," iv. p. 233. *Nœvia seriata*—Fckl., "Symb. Myco.," p. 249.

Exs.—Lib., *l. c.*; Fckl., "F. Rh.," 1841; Phil., "Elv. Brit.," No. 100; Rabh., "Fung. Eur.," 1710 and 1909.

On *Carex ampullacea*.

Receptacles about 150 to 200μ, covering the leaves on the under side. This species is easily recognized, but after repeated searches I am not able to detect the sporidia. Fuckel says, "sporidia 6 to 8, globosa, minuta, hyalina includentibus." The asci are about 250 × 6μ. I am not sure that it should remain amongst the *Stictei*; it is very near *Phacidium*.

Name—*Series*, a row; from growing in a row.

Forres, N.B.! (Rev. Dr. Keith).

7. *Stictis Fagicola* (nov. sp.).

Gregarious or scattered, immersed, urceolate, yellow; mouth connivent, nearly round or somewhat elliptic, surrounded by a spurious border of the same colour; asci cylindrical, slender; sporidia 8, fusiform, straight, simple, 8 × 2μ; paraphyses filiform, globose at the apices.

On beech—fallen, dead, decorticated branches.

About $\frac{1}{4}$ to $\frac{1}{2}$ a line broad. Exactly resembling externally the next species, but having different asci, sporidia, and paraphyses.

Name—*Fagus*, the beech, *colo*, to inhabit.

Ellesmere, Salop!

8. *Stictis punctiformis.* Pers.

Gregarious, minute, immersed, urceolate, suborbicular; hymenium reddish-brown or fuliginous; mouth connivent, surrounded by a border of the same colour; asci cylindraceo-clavate; sporidia 8, fusiform, simple; paraphyses filiform, globose at the apices.

Stictis punctiformis—Pers. in Gay's collection in Kew Herbarium, named by Persoon himself, with which the English specimen has been compared.

On dead willow-wood.

Cups 100 to 500μ broad. Very similar to *S. Fagicola*, but the sporidia are simple, and the paraphyses are globose at the apices.

Name—*Punctum*, a point, *forma*, shape.

King's Lynn! (Mr. C. B. Plowright).

D. SPORIDIA DOUBTFUL.

9. *Stictis graminum.* Desm.

Orbicular, scattered, small, deeply excavated; disc black; margin prominent, clad with a white meal, nearly entire; asci elongated; sporidia (very minute, globose).

Stictis graminum—Desm., "Crypt. Fr.," exs. No. 1071; "Ann. Sc. Nat." (1840), xiii. 185; B. and Br., "Ann. Nat. Hist.," 1328; Fckl., "Sys. Myco.," p. 250; "Grevillea," i. p. 132; Gill., "Champ.," p. 179; Pat., p. 30, f. 69 (?).

Exs.—Desm., "Crypt. Fr.," 1071; Fckl., "F. Rh.," 1106.

On *Carex paniculata.* June.

Desmazieres describes the sporidia as "very minute, globose;" Fuckel as "filiform, as long as the asous." Not having seen the British plant, we cannot determine the form of sporidia (Cooke, *l. c.*).

Rejected Species.

Stictis parallela, Fries, is a *Xylographa* (*vide* Leighton's "Lichen Flora of Great Britain").

Stictis longa, Fries, is a *Xylographa.*

Order VIII.—PHACIDIACEÆ.

Receptacle immersed, more or less coriaceous; hymenium at first covered, at length exposed by the regular or irregular fissure of the outer covering. (Plate XII. figs. 76–78.)

Name—From the typical genus *Phacidium*.

ARRANGEMENT OF THE GENERA.

I. *Phacidium*. Fries.
II. *Trochila*. Fries.
III. *Stegia*. Fries.

KEY TO THE GENERA.

Hymenium becoming exposed by the epidermis of the matrix splitting from the centre into laciniæ	*Phacidium*.
Hymenium becoming exposed by splitting at the summit irregularly	*Trochila*.
Hymenium becoming exposed by the falling off of a horizontal operculum	*Stegia*.

GENUS I.—PHACIDIUM. Fries.

Perithecium orbicular, flattened, subdimidiate, dehiscing from the centre into laciniæ, distinct from the placentiform disc. (Plate XII. fig. 76.)

The perithecium is covered by the epidermis of the matrix; the hymenium is mostly dark-coloured, lining the base of the perithecium.

On leaves and bark.

Name—φακός, a lentil, εἶδος, resemblance; shaped like a lentil.

ARRANGEMENT OF THE SPECIES.

A. Sporidia elliptic or subelliptic.		
(*a*) Brown	species	1
(*b*) Hyaline	„	2–6
B. Sporidia fusiform or subfusiform ..	„	7–10
C. Sporidia filiform or subfiliform	„	11–16

KEY TO THE SPECIES.

	On trees and shrubs	1
	On herbaceous plants	4
1	On the stems	2
	On the leaves	3

2.	Hymenium brownish or cinereous: on *Rubus* ..	*striatum.*
	Hymenium pale fuliginous: on *Pinus*	*Pini.*
	Hymenium straw-coloured: on *Vaccinium*	*leptideum.*
3.	Hymenium dirty-yellow: on *Quercus*	*dentatum.*
	Hymenium pallid, livid, or yellowish: on *Quercus*	*coronatum.*
	Hymenium whitish: on *Rubus*	*Rubi.*
	Hymenium whitish: on *Ilex*	*Ilicis.*
	Hymenium whitish: on *Quercus*	*minutissimum.*
...	Hymenium sooty-black: on *Vaccinium*	*Vaccinii.*
	Hymenium pale brown: on *Arctostaphylos*	*Arctostaphyli.*
	Hymenium cinereous: on *Pinus*	*abietinum.*
	Hymenium black: on *Juniperus*	*tetrasporum.*
4.	On the stems	5
	On the leaves	6
5.	Hymenium fuliginous: on *Campanula*	*radians.*
	Hymenium red-brown: on *Clinopodium*	*simulatum.*
6.	Hymenium brownish or cinereous: on *Caltha* ..	*Calthæ.*
	Hymenium dingy-brown: on various plants ..	*repandum.*

A. SPORIDIA ELLIPTIC OR SUBELLIPTIC.

(*a*) *Brown.*

1. *Phacidium tetrasporum.* Phil. and Keith.

Epiphyllous, erumpent, circular or oblong, convex, cinereous, seated on a brownish-yellow spot, splitting irregularly into 3 or 4 laciniæ; hymenium black on the surface, brownish-yellow within; asci broadly clavate; sporidia 4, elliptic-ovate, with a septum near the lower end, often with a papilla, brown, 25—28 × 17μ; paraphyses numerous, filiform, with brown, pear-shaped heads, septate.

Phacidium tetrasporum—Phil. and Keith. in *Gard. Chron.*, 1880, Sept. 4, t. 56; "Scott. Nat.," vi. 164.

On the upper side of juniper-leaves while yet green, simulating a *Puccinea.*

About ½ a line broad.

Name τετράς, four, σπόρος, seed; four-seeded.

Forres, N.B.! (Rev. Dr. Keith).

(*b*) *Hyaline.*

2. *Phacidium radians.* Rob.

Erumpent, black; receptacles minute, rounded or oblong, globose, then flattened, solitary and scattered, or

confluent in radiating lines; hymenium fuliginous; asci clavate; sporidia 8, oblong-elliptic or obovate, straight or slightly curved, 7–10 × 3μ; paraphyses filiform, slender.

Phacidium radians—Rob. in Desm., "Crypt. Fr."; Desm., "Ann. Sc. Nat.," 1842, p. 116; Karst., "Symb.," p. 257; Cooke, "Grevillea," ii. p. 165; Kickx., "Flo. Flan.," i. p. 459; Gill., "Champ.," p. 168. *Trochila radians*—De Not., "Disc.," p. 16. *Leptotrochila radians*—Karst., "Myco. Fenn.," p. 245.

Exs.—Desm., "Crypt. Fr.," ed. i. 1350, and ed. ii. 750; Karst., "Fung. Fenn.," 845.

On living leaves of *Campanula patula*.

Name—*Radius*, a sunbeam; from growing in radiating lines.

Near Worcester (Mr. Edwin Lees).

3. *Phacidium minutissimum*. Awd.

Hypophyllous, gregarious, minute, innate, round or angular, brown, soon splitting from the centre into 3 to 4 laciniæ, exposing the whitish hymenium; asci minute, clavate; sporidia 8, elliptic, 7 × 4μ; paraphyses filiform, scarce.

Phacidium minutissimum—Awd. in Rabh., "Fung. Eur.," 228; Fckl., "Symb. Myco.," p. 263; Cooke, "Handbk.," No. 2267; Sacc., "Mich.," vol. ii. p. 537; Fresen., "Beitr.," t. viii. f. 17–19; Gill., "Champ.," p. 167, c. i.

Exs.—Rabh., "Fung. Eur.," 228; Fckl., "F. Rh.," 1098.

About 100 to 150μ broad.

On oak-leaves.

Name—*Minutus*, minute; very minute.

Shere! (Dr. Capron).

4. *Phacidium Vaccinii*. Fries.

Erumpent, minute, convex, shining, rugose, splitting into 4 laciniæ; hymenium sooty black; asci broadly clavate; sporidia 8, oblong-elliptic, 10 × 4μ; paraphyses filiform, slender.

Spermogonia: spermatia simple, cylindrical, straight obtuse, 10—13 × 2—2·5μ.

Phacidium Vaccinii—Fries, "Sys. Myco.," ii. p. 575; Berk., "Eng. Flo.," v. p. 292; Cooke, "Handbk.," 2264; Fckl., "Symb. Myco.," p. 261; Gill., "Champ.," p. 170. *Xyloma erumpens*—Fries, "Obs.," i. p. 202.

Exs.—Fries, "Scl. Suec.," 289; Fckl., "F. Rh.," 1029.

On leaves of *Vaccinium Vitis Idæa.*

Name—*Vaccinium,* the generic name of the plant on which it grows.

Near Berwick (Dr. Johnston). Stiperstones, Salop!

5. *Phacidium simulatum.* B. and Br.

Erumpent, linear, cup-shaped, margin irregular; hymenium linear, red-brown; asci cylindraceo-clavate, sporidia 8, obovate, 2-guttulate, 10 × 4·5μ; paraphyses filiform, enlarged at the apices.

Phacidium simulatum—B. and Br., in "Ann. Nat. Hist.," No. 967, t. 16, f. 20; Cooke, "Handbk.," No. 2273.

On dead stems of *Clinopodium.*

Name—*Simulo,* to counterfeit; resembling another.

Langridge, Somerset! (Mr. C. E. Broome).

6. *Phacidium Ilicis.* Lib.

Subinnate, convex, black, dehiscing into 3 to 5 laciniæ, hymenium whitish; asci clavate; sporidia 8, narrowly elliptic, 2-guttulate, 10 × 3·5μ; paraphyses filiform, stout.

Stylospores: stroma containing 3 to 5 cells, orbicular, plane, black, shining, penetrating the matrix, splitting into 3 to 5 laciniæ; stylospores cylindrical, straight, 13 × 2μ.

Phacidium Ilicis—Lib., Exs. No. 64; Fresen., "Beitr.," t. 8, f. 17–21; Tul., "Select. Fung. Carp.," iii. p. 138, t. 15, f. 1–8; Cooke, "Handbk.," 2272; Gill., "Champ.," p. 166. *Phacidium multivalve*—Fries, "Sys. Myco.," ii. p. 576; *Sphæria bifrons*—Sow., t. 316.

Stylosporous stage: *Ceuthospora phacidioides*—Grev., t. 253; Berk., "Eng. Flo.," v. p. 283. *Cytispora foliicola* —Lib., exs. No. 64.

Exs.—Moug. and Nest., 560; Desm., No. 1626; Cooke, "Fung. Brit.," ed. ii. 450.

On dead holly-leaves.
Name—*Ilex*, holly; growing on holly.
Common!

B. SPORIDIA FUSIFORM OR SUBFUSIFORM.

7. *Phacidium Calthæ.* Phil.

Hypophyllous, congregated or confluent on brown spots, innate, then erumpent; hymenium plane or convex, brownish or cinereous; asci broadly clavate; sporidia 8, oblong-fusiform or subclavate, 2-guttulate, 15—20 × 5—7μ; paraphyses filiform, occasionally forked at the apices.

Phacidium Calthæ—Phil. in "Grevillea," viii. p. 103.

On decaying leaves of *Caltha palustris.* Autumn.

About $\frac{1}{3}$ to $\frac{3}{4}$ of a line broad. The epidermis of the leaf forms an indistinct margin, or altogether disappears, leaving the disc exposed.

Name—*Caltha*, the generic name of the plant on which it grows.

Scotland! (Rev. J. Stevenson). Ruyton-of-the-Eleven-Towns, Salop!

8. *Phacidium Arctostaphyli.* Karst.

Subgregarious, innate, then erumpent, splitting the epidermis into about five equal, acute, spreading laciniæ; hymenium convex, pale brown, when dry black; asci clavate; sporidia 8, elongate-fusiform or oblong-fusiform, straight or curved, with two large guttæ, 18—22 × 4—5μ; paraphyses filiform, coherent, becoming brown at the apices.

Phacidium Arctostaphyli—Karst., "Symb.," p. 256. *Propolis phacidioides*—Fries, "Summa Veg. Scan.," p. 372. *Stictis phacidioides*—Fries, "Sys. Myco.," ii. p. 198; Berk., "Ann. Nat. Hist.," 162; Cooke, "Handbk.," 2231. *Sphæria arbuti*—Sow., t. 370, f. 6. *Trochila phacidioides*—Karst., "Myco. Fenn.," p. 249.

Exs.—Fries, "Scl. Suec.," 297; Karst., "Fung. Fenn.," 843.

On leaves of *Arctostaphylos Uva-Ursa.*

Name—From the plant on which it grows.

Lubcroy, Sutherlandshire (Mr. C. Babington).

9. *Phacidium abietinum.* Schmidt.

Erumpent, subrotund, convex, then depressed, black, splitting into 3 to 4 obtuse laciniæ; hymenium cinereous; asci cylindraceo-clavate; sporidia 8, oblong-fusiform, 10—14 × 4·5μ; paraphyses filiform, slender.

Phacidium abietinum—Schmidt in "Myco. Heft.," i. p. 35; Fries, "Sys. Myco.," ii. p. 576; Fckl., "Symb. Myco.," p. 262; Cooke, "Handbk.," No. 2268; Gill., "Champ.," p. 165.

Exs.—Roumg., "Fung. Gal.," 659.

On fallen leaves of Scotch pine.

Orbicular, ½ a line broad.

Name—*Abies*, the generic name of the tree on which it was first found.

Scotland (A. Jerdon). Carlisle (Dr. Carlyle).

10. *Phacidium striatum.* Phil. and Plow.

Scattered, orbicular, rugose-striate, splitting into 5 to 6 laciniæ; hymenium fuliginous; asci clavate, attenuated towards the summit; sporidia 8, lanceolate, simple or 1-septate, 25—30 × 2—4μ; paraphyses filiform, curved at the apices, numerous. (Plate XII. fig. 76.)

Phacidium striatum—Phil. and Plow. in "Grevillea," xiii. p. 75.

On dead stems of *Rubus*.

About ½ a line broad; resembling externally *P. rugosum*, Fries, but with totally different sporidia.

Name—*Stria*, a furrow; marked with lines.

Dinmore, Herefordshire! (Mr. C. B. Plowright).

C. SPORIDIA FILIFORM OR SUBFILIFORM.

11. *Phacidium Pini.* (A. and S.)

Scattered or crowded, erumpent, subrotund, hemispherical, depressed, at first closed, shining, black, at length splitting into obtuse laciniæ; hymenium pale fuliginous; asci cylindraceo-clavate; sporidia 8, filiform,

acute at the ends, 5 to 9 pseudo-septate, 80 × 4μ; paraphyses filiform, simple, clavate at the apices, adherent.

Spermogonia intermixed with the above, punctiform, black, acutely umbonate; cavity simple, sinuose, narrow; spermatia filiform, slightly bent, about 10 × 1μ.

Xyloma Pini—A. and S., "Consp.," p. 60, t. 5, f. 8. *Phacidium Pini*—Fries, "Sys. Myco.," ii. p. 573; "Eng. Flo.," v. p. 292; Curr., "Linn. Trans.," xxiv. t. 25, f. 36; Cooke, "Handbk.," No. 2262; Tul., "Select. Fung. Carp.," iii. p. 136; Fckl., "Symb. Myco.," p. 263, t. iv. f. 31. *Phacidium valvatum*—Schmidt, "Myco. Heft.," i. p. 30, t. 2, f. 11. *Coccomyces Pini*—Karst., "Myco. Fenn.," p. 254.

Exs.—Fries, "Scl. Suec.," 62; Fckl., 1095; Roumg., "Fung. Gal.," 1268.

On bark of *Pinus sylvestris*.

Name—*Pinus*, the generic name of the tree on which it grows.

Common!

12. *Phacidium dentatum*. Schmidt.

Orbicular or subquadrate, plane, depressed in the centre, shining, black, seated on pallid spots, at length splitting into 4 or 5 acute laciniæ; hymenium dirty-yellow, somewhat livid; asci cylindraceo-clavate; sporidia 8, filiform, 80 × 2·5μ; paraphyses filiform.

Phacidium dentatum—Schmidt, "Myco. Heft.," i. 147; Fries, "Sys. Myco.," p. 577; Berk., "Eng. Flo.," v. p. 292; Fckl., "Symb. Myco.," p. 261; Corda, "Icon.," iii. f. 81; Tul., "Select. Fung. Carp.," iii. p. 132; Cooke, "Handbk.," No. 2266; Gill., "Champ.," p. 166, c. i.

Exs.—Moug. and Nest., No. 561; Schmidt, No. 206; Fckl., "F. Rh.," No. 1090; Ayres, No. 71; Berk., No. 93; Cooke, "Fung. Brit.," 458, ed. ii. 449; Roumg., "Fung. Gal.," 68; Rav., "Fung. Am.," 318.

On fallen oak-leaves.

About $\frac{1}{4}$ of a line broad.

Name—*Dens*, a tooth; toothed.

Common!

13. *Phacidium Rubi.* Fries.

Innate, roundish, hemispherical or plane, rugulose, black; splitting into obtuse, unequal laciniæ; disc whitish; paraphyses curved at the tips; sporidia linear, rounded at the ends with 6 to 8 nuclei.

Phacidium Rubi—Fries, "Sys. Myco.," ii. p. 578; B. and Br., "Ann. Nat. Hist.," No. 586; Cooke, "Handbk.," No. 2274.

Exs.—Fries, "Scl. Suec.," No. 56; Rabh., "Fung. Eur.," No. 1028.

On dead bramble-stems. Fries says "on leaves of *Rubus Idæus*." Gregarious, generally confluent, form and size variable, 1 to 2 lines broad, when fresh shining, when dry opaque.

"The asci, paraphyses, and sporidia are just the same as in *P. coronatum*" (B. and Br., *l. c.*).

Twycross, Warwickshire (Rev. A. Bloxam).

14. *Phacidium coronatum.* Fries.

Gregarious, often confluent, innate-emergent, orbicular, hemispherical-depressed, at first closed, when moist tumid, convex, smooth, shining, black, when dry collapsed, rugose, often umbonate, at length splitting into 5 to 10 acute, nearly equal laciniæ; hymenium pallid, livid, or yellowish; asci cylindraceo-clavate, attenuated at the summit; sporidia 8, fusoideo-filiform, straight or curved, pseudo-multiseptate, 45—70 × 2—3μ; paraphyses numerous, filiform, simple, adherent, flexuous or circinate at the apices.

Spermogonia intermixed with the above, punctiform, globose-depressed, unilocular, filled with spermatia, which are elongated, straight, colourless, about 65μ long.

Phacidium coronatum—Fries, "Obs.," i. p. 167; in "Vet. Ac. Handl.," 1819, p. 108; "Sys. Myco.," ii. p. 577; "Summa Veg. Scan.," p. 370; Berk., "Eng. Flo.," v. p. 292; Ditm. in Sturm., "Flo.," pt. iii. (1817), p. 127, t. lxiii.; Grev., t. 52; Berk., "Mag. Zool. and Bot.," vol. i. No. 58, t. 15, f. 5; Corda, "Icon.," iii. p. 31, t. 5, f. 81;

Curr., "Trans. Linn. Soc.," vol. xxiv. (1863), p. 155, t. xxv. f. 7; Tul., "Select. Fung. Carp.," iii. p. 134; Cooke, "Handbk.," No. 2265; Karst., "Myco. Fenn.," p. 256; Fckl., "Symb. Myco.," p. 261. *Peziza viridis*—Bolt., 109.

Exs.—Fries, 163; Schm., 82; Moug. and Nest., 559; Desm., "Crypt. Gal.," fasc. 12, No. 570; Rabh., "Herb. Myco.," 716; Rabh., "Fung. Eur.," 652; Cooke, "Fung. Brit.," 457; Fckl., "F. Rh.," 1096; Karst., "Fung. Fenn.," 340; Phil., "Elv. Brit.," 201; Winter, "Fungi Eur.," 2645.

On fallen leaves of oak, poplar, willow, etc.

About ½ to 1 line broad.

Name—*Corona*, a crown; crowned with a ring of laciniæ.

Common!

15. *Phacidium leptideum.* Fries.

Somewhat innate, depressed, plane, black, splitting into several acute laciniæ; hymenium straw-coloured; sporidia 8, filiform, curved, hyaline, 86 × 3—4μ.

Phacidium leptideum—Fries, "Sys. Myco.," ii. p. 576; and "Summa Veg. Scan.," p. 370; B. and Br., "Ann. Nat. Hist.," No. 1830; "Grevillea," viii. p. 9. *Phacidium quadratum*—Schmidt., "Myco. Heft.," p. 32; Wallr., "Flo. Germ.," ii. p. 415. *Coccomyces quadratus*—Karst., "Myco. Fenn.," p. 255.

Exs.—Karst., "Fung. Fenn.," 848; Roumg., "Fung. Gal.," 543.

On stems of *Vaccinium myrtillus.*

Cups ½ to 1 line broad; asci cylindraceo-clavate, attenuated at the apices, 50 × 16μ; sporidia 60—90 × 2·5μ (Karst., *l.c.*).

Name—λεπτος, fine, εἶδος, appearance; a fine species.

Scotland.

16. *Phacidium repandum.* Fries.

Gregarious, innate, subrotund, pallid-green, at length black, splitting into unequal, obtuse laciniæ; hymenium dingy-brown; asci cylindraceo-clavate; sporidia 8,

acicular, straight or very slightly bent, 11—12 × 3μ; paraphyses filiform.

Phacidium repandum—Fries in "Vet. Ac. Handl.," 1819, p. 108; "Sys. Myco.," ii. p. 578; "Eng. Flo.," v. p. 293; Berk., "Outl.," 379; Cooke, "Handbk.," No. 2269; Gill., "Champ.," p. 169. *Xyloma herbarum*—A. and S., "Consp.," p. 65, t. 14, f. 6. *Leptotrochila repandum*—Karst., "Myco. Fenn.," p. 246.

Exs.—Desm., "Crypt. Fr.," ed. ii. 1640; Cooke, "Fung. Brit.," 283; Rehm, "Asco.," 321; Roumg., "Fung. Gal.," 835.

On stems and leaves of various plants.

Name—*Repandus*, bowed; the laciniæ bent back.

Common!

Rejected Species.

Phacidium carbonaceum, Fries, is *Discella carbonacea* (Fries)—B. and Br., *vide* "Ann. Nat. Hist.," No, 426, t. xii. f. 8.

GENUS II.—TROCHILA. Fries, "Summa Veg. Scan.," p. 367.

Receptacle innate, at first closed, covered by the epidermis, membranaceous, subcoriaceous, erumpent, then splitting at the top irregularly. (Plate XII. fig. 77.)

Name—τροχίλος, a hollow running round the base of a column; raised in the centre, surrounded by a depression.

1. *Trochila craterium.* Fries.

Hypophyllous, scattered, blackish, at length deeply collapsed; asci cylindrical; sporidia very shortly oval, almost round, sometimes with a large gutta, 7·5μ long.

Pycnidia: Stylospores minute, subglobose. (Plate XII. fig. 77.)

Trochila craterium—Fries, "Summa Veg. Scan.," p. 367; Berk., "Outl.," 381; Fckl., "Symb. Myco.," p. 277;

Cooke, "Handbk.," No. 2316; Tul., "Select, Fung. Carp.," ii. p. 180. *Sphæria craterium*—"Eng. Flo.," v. p. 277. *Cryptosphæria punctiformis*, var. β. *Hederæ*—Grev., "Flo. Edin.," p. 362; Pers., "Syn. Fung.," p. 90.

Pycnidia: *Myxosporium paradoxum*—De Not., "Micro. Ital.," Dec. ii. f. 10. B. and Br., "Ann. Nat. Hist.," No. 439. *Glœosporium Notarisii*—Mont., "Ann. Sc. Nat.," 1849, xii. 296; Fckl., "Symb. Myco.," p. 277; Rehm, "Asco.," 719.

Exs.—Fckl., "F. Rh.," 1113 and 1649; Baxt., 29; Ayres, 65; Moug. and Nest., 986; Rabh., "Fung. Eur.," 527 and 1720; Cooke, "Fung. Brit.," 180, ed. ii. 294; Roumg., "Stirpes," 169.

On dead ivy leaves.

Name—*Cratera*, a cup or goblet; from its supposed resemblance to a cup.

Common!

2. *Trochila Buxi*. Capron.

Hypophyllous, blackish, cæspitose or scattered, splitting into minute unequal laciniæ; sporidia oval, elongated, 10—12μ (E. Capron).

Trochila Buxi—Capron in Cooke's "Handbk.," No. 2315.

On box-leaves.

Sporidia larger than in *T. craterium*.

Name—*Buxus*, the generic name of the box-tree, on which it grows.

Shere (Dr. Capron).

3. *Trochila Lauro-cerasi*. (Desm.)

Hypophyllous, orbicular, punctiform, hollow when collapsed, at length black, splitting into three acute laciniæ; asci cylindrical or cylindraceo-clavate; sporidia 8, oblong, rounded at the ends, 8—12 × 5μ.

Phacidium Lauro-cerasi—Desm., "Crypt. Fr.," exs., 188; Berk., "Eng. Flo.," v. p. 293; Fries, "Elench.," ii. p. 136; Gill., "Champ.," p. 166, c. i. *Trochila Lauro-cerasi*—Fries, "Summa Veg. Scan.," p. 367; Berk., "Outl.,"

381; Fckl., "Symb. Myco.," p. 277; Cooke, "Handbk.," No. 2314; Tul., "Select. Fung. Carp.," p. 181; Sacc., "Mich.," vi. p. 83.

Exs.—Desm., "Crypt. Fr.," 188; Moug. and Nest., 985; Ayres, No. 72; Berk., 45; Cooke, "Fung. Brit.," 179, ed. ii. 295; Fckl., "F. Rh.," 1112; Roumg., "Fung. Gal.," 67 and 266; Sacc., "Mich.," vi. p. 83; Winter, "Fungi Eur.," 2739; Rehm, "Asco.," 622.

On fallen laurel-leaves.

Disc yellowish when moist.

Name—The specific name of laurel (*Cerasus Laurocerasus*) on which it grows.

Common!

Genus III.—Stegia. Fries.

Perithecia orbicular, splitting horizontally; operculum deciduous (Berk.). (Plate XII. fig. 78.)

Name—στέγω, to cover; the hymenium being covered by the perithecium.

Stegia ilicis: Fries.

Innate, operculum nearly plane, falling off, surrounded by a ring-like, whitish margin; asci linear; sporidia oblong, 12 × 4μ. (Plate XII. fig. 78.)

Stegia ilicis—Fries, "Elench.," ii. p. 112; Cooke, "Handbk.," No. 2313; Gill., "Champ.," p. 172. *Eustegia ilicis*—"Eng. Flo.," v. p. 280; Fckl., "Symb. Myco.," p. 264. *Sphær. concava*—Sow., t. 317. *Xyloma concava*—Grev., "Flo. Edin.," p. 368.

Exs.—Fries, "Scl. Suec.," No. 417; Moug. and Nest., No. 82; Baxt., No. 77; Fckl., "F. Rh.," 1589; Cooke, "Fung. Brit.," No. 178, ed. ii. No. 293; Klotzsch, 431; Rabh., "Fung. Eur.," No. 463.

On holly-leaves.

Name—*Ilex*, the generic name of the tree on which it grows.

Common!

Order IX.—GYMNOASCEÆ. Sadebeck.*

Without a receptacle, or an indication of one only in the more highly developed genera; asci either single or in little tufts, arising from widely creeping hyphæ; or more or less closely crowded together into hymenia; or, lastly, arising from the terminal branches of copiously ramifying hyphæ in pellets, which are covered with a lax mycelial veil.

Name—*γυμνος*, naked, *ἀσκός*, a leather bottle; here meaning an ascus.

Genus I.—Ascomyces. Mont. et Desm., "Ann. Sc. Nat.," ser. 3, vol. xi. p. 345 (1849).

Parasitic on living plants; asci not seated on a proper receptacle, but on the cuticle of the host-plant, closely pressed together in little tufts or extended layers, arising from the mycelium, which ramifies between the epidermal cells and the cuticle. Their effect is to cause the injured parts to change colour, to swell into blisters, and become much enlarged. The asci are very small, cylindrical, clavate, or subpyriform, and contain 8 (or more ?) sporidia. (Plate XII. fig. 79.)

Name—*ἀσκός*, ascus, *μύκης*, a fungus; fungi consisting of asci only.

Arrangement of the Species.

A. Perennial mycelium spreading through the intercellular spaces of the young shoots in spring.
  (*a*) Asci furnished with a stem-cell .. species 1–3
  (*b*) Asci not furnished with a stem-cell „ 4

* Professor Sadebeck has contributed a revision of this order to Dr. Winter's new edition of Rabenhorst's "Cryptogamin-Flora von Deutschland," the arrangement of which is followed here as regards the genus *Ascomyces*. The order is not included in the *Discomycetes* in the work quoted.

B. The mycelium spreading *only* between the epidermal cells and the cuticle of the young shoots.
(*a*) Asci furnished with a stem-cell .. species 5–7
C. Species the position of which is at present uncertain .. .. „ 8,9

KEY TO THE SPECIES.

	On trees	1
...	On herbaceous plants..	2
1.	On leaves of *Alnus glutinosus*: sporidia 8	*Tosquinetii.*
	On female catkins of *Alnus glutinosus*: sporidia more than 8	*Alni.*
	On leaves of *Juglans regia*	*Juglandis.*
	On branches and leaves of *Betula alba*	*turgidus.*
	On leaves of *Pyrus communis*, *Cratægus Oxycantha*, and *C. monogynea*	*bullatus.*
	On young fruit of *Prunus domestica*, *P. Padus*, and *P. spinosa*	*Pruni.*
	On leaves and branches of *Prunus avium*, *P. Cerasus*, *P. domestica*, *P. Chamæcerasus*, and *Persica vulgaris*, *P. amygdalus*, and *P. communis*	*deformans.*
2.	On *Potentilla Tormentilla*	*Potentillæ.*
	On *Trientalis Europæa*	*Trientalis.*

A. PERENNIAL MYCELIUM SPREADING THROUGH THE INTERCELLULAR SPACES OF THE YOUNG SHOOTS OF THE INFECTED PLANT IN SPRING.

(*a*) *Asci furnished with a stem-cell.*

1. *Ascomyces Pruni.* (Tul.)

On unripe fruit of *Prunus domestica, spinosa,* and *Padus,* deforming them; asci oblong-clavate, rounded or truncate at the summit; sporidia 8, broadly elliptic, about 6 × 4μ.

Taphrina Pruni—Tul. in "Ann. Sc. Nat.," ser. 5, vol. v. p. 129; Johanson, "Vet. Ac. Handl.," arg. 12, p. 32. *Exoascus Pruni*—Fckl., "Symb. Myco.," p. 252; Sadebeck in Rabh., "Krypt. Flo.," p. 5, fig. 3. *Ascomyces Pruni*—B. and Br., "Ann. Nat. Hist.," No. 1629; "Grevillea," v. p. 62.

Exs.—Fckl., "F. Rh.," 1081; Kunze, "Fung. Sel.," 167; Rabh., "Fung. Eur.," 1167; Rehm, "Asco.," 130; Thum., "Fung. Aus.," 504; Thum., "Mycoth. Univ.," 976.

On fruit of *Prunus Padus, P. domestica,* and *P. spinosa.* June.

Name—From the host plant.

Bishop's Castle, Salop! Sibbertoft (Rev. M. J. Berkeley).

2. *Ascomyces deformans.* Berk.

Hypophyllous, rendering the matrix here and there bullate, sprinkled with a white powder; asci short, cylindrical; sporidia elliptic, hyaline, 7 × 5μ.

Ascomyces deformans—Berk. in "Outl.," 376, t. i. f. 9, A, B; and "Crypt. Bot.," p. 284; Cooke, "Handbk.," No. 2233.

Exoascus deformans—Fckl., "Symb. Myco.," p. 252; Sadebeck in Rabh., "Crypt. Flo.," p. 6. *Taphrina deformans*—Tul., "Ann. Sc. Nat.," ser. 5, vol. v. p. 129. *Exoascus Wiesneri*—Rathey, "Oest. Bot. Zeit.," 1880, No. 7.

Exs.—Fckl., "F. Rh.," 2063 and 2275; Kunze, "Fung. Sel.," 168, 274; Winter, "Fungi Eur.," 2035; Rehm, "Asco.," 370.

On living leaves of peach. June.

Sadebeck says (*l. c.*) that this species produces the "witches' besoms" on *Prunus Avium, P. Cerasus, P. domestica,* and *P. Chamæcerasus;* also the so-called "curl" disease of *Persica vulgaris, P. Amygdalus,* and *P. communis.* Asci 42 to 50μ long, 5 to 7μ broad; the stem-cell 16μ or more high, 5μ, but mostly only 1·5 to 2μ, broad. Notwithstanding their pointed lower ends, the stem-cells do not force themselves between the epidermal cells, but are seated on them.

Name—*Deformo,* to deform.

3. *Ascomyces bullatus.* B. and Br.

Tufts punctiform, at length confluent, at first covered by the epidermis, which it raises in blisters; asci clavate; sporidia 8, ovate or elliptic, subgelatinous, hyaline.

Ascomyces bullatus—B. and Br. in Berk., "Outl.," p. 376; "Crypt. Bot.," p. 284; Cooke, "Handbk.,"

No. 2232; Gill., "Champ.," p. 201. *Oidium bullatum*—B. and Br., "Jour. Hort. Soc.," ix. p. 51, with fig. *Taphrina bullata*—Tul., "Ann. Sc. Nat.," ser. 5, vol. v. p. 127; Johanson, "Vet. Ac. Handl.," 42, p. 33. *Exoascus bullatus*—Fckl., "Symb. Myco.," nacht. ii. p. 49; Sadebeck, *l. c.*

Exs.—Fckl., "F. Rh.," 2551; Thum., "Fung. Aus.," 972 and 1056.

On living pear-leaves. It also occurs on *Cratægus Oxycanthus*, and *C. monogyna*. April and May.

The asci are 30—37 × 8μ; the sporidia 4·5μ (Sadebeck, *l. c.*). Asci 15—25 × 10μ (Cooke, *l. c.*).

Name—*Bullata*, a blister; blistered.

Shrewsbury!

(*b*) *Asci not furnished with a stem-cell.*

4. *Ascomyces Potentillæ*. (Farlow.)

Decolorizing (to pale yellow-green) the branches and leaves, rendering the branches several times thicker than their natural size; asci clavate, rounded or truncate at the summit, attenuated below into a slender, non-septate stem, continuous with the mycelium, which spreads through the intercellular spaces of the epidermis; sporidia 8, oblong-elliptic, 5—8 × 4μ.

Exoascus deformans, var. *Potentillæ*—Farlow, "Proc. Am. Ac. A. and S.," xviii. (1883), p. 84. *Taphrina Tormentillæ*—Rost., "Bot. Tid.," ser. 3, vol. iv. (1884—1885), p. 239; Johanson, "Vet. Ac. Handl.," 42 (1885), p. 29, t. 1, f. 2.

On *Potentilla Tormentilla*, Scop.

The asci in the Scottish specimen are truncate or rounded at the summit, and attenuated downwards more or less equally to a slender stem-like base, arising directly from the branching hyphæ beneath the cuticle, 30 to 50μ high, 7 to 9μ in the broadest part, and 2μ in the narrowest part. The sporidia are confined to the broad upper half of the ascus, elliptic, and (as I measure them) 4—5 × 2—2·5μ.

Craigiebuckler Wood, Aberdeen! (Dr. James W. H. Trail).

B. THE MYCELIUM SPREADING ONLY BETWEEN THE EPIDERMAL CELLS AND THE CUTICLE.

(*a*) *Asci furnished with a stem-cell.*

5. *Ascomyces Tosquinetii.* West.

Producing blisters on the upper surface of the leaves; asci cylindrical or cylindraceo-clavate, round at the summit, truncate at the base; sporidia 8, spherical, 4—5μ broad.

Ascomyces Tosquinetii—West in "Bull. l'Acad. Belg.," ser. 2, vol. xi. p. 655; Phil. and Plow., "Grevillea," vi. p. 25; Gill., "Champ.," p. 201. *Exoascus Alni*—De Bary in Fckl., "Symb. Myco.," p. 252. *Taphrina alnitorqua*—Tul., "Ann. Sc. Nat.," ser. 5, vol. 5, p. 130. *Exoascus Tosquinetii*—Sacc., "Mich.," iv. p. 433.

Exs.—Fckl., "F. Rh.," 2276; Rehm's "Asco.," 217; Phil., "Elv. Brit.," 150; Rabh., "Fung. Eur.," 1837; Thum., "Fung. Aus.," 183; and "Mycoth. Univ.," 81.

On living leaves of *Alnus glutinosus.* July and August.

Name—After M. Tosquinet.

6. *Ascomyces Alni.* B. and Br.

Deforming the inflorescence; sporidia numerous in each ascus.

Ascomyces Alni—B. and Br., "Ann. Nat. Hist.," No. 1628; "Grevillea," v. p. 62; not *Exoascus Alni*—De Bary. *Exoascus alnitorqua*, form *Alni incanæ*—Kühn in Rabh., "Fung. Eur.," No. 1616. *Ascomyces Tosquinetii* (West)—Kunze, "Fung. Sel.," 369. *Exoascus Alni*, De Bary, form *strobilina*—Thum. in Rehm's "Asco.," 518.

Exs.—Rabh., "Fung. Eur.," 1616; Kunze, "Fung. Sel.," 369; Rehm, "Asco.," 518.

On female catkins of *Alnus glutinosus.*

Differs from other species in the asci containing more numerous sporidia, which are only ·0002 to ·0003 inch

(5 to 7·6μ) long, whereas in *A. bullatus* they are ·0004 inch (10μ) (B. and Br., *l. c.*).

Name—From the name of the host plant.

Dr. Masters.

7. *Ascomyces turgidus.* (Sadeb.)

Producing "nests," or "witches' besoms," on birch, developing the asci in spring and summer on the under side of the leaves, on which the leaves at first curl up sinuously, lose the fresh green colouring of the healthy leaf, and on the breaking forth of the asci appear to be covered on the under side with a greyish-white hoariness. The asci are 46—50μ long, and about 15μ broad: they have a stem-cell 16—17μ high, and 15μ broad; they, however, diminish conically downwards and penetrate between the epidermal cells. The sporidia are 3—4μ in diameter.

Exoascus turgidus—Sadeb. in Rab., "Crypt. Flo.," vol. vi p. 8.

On *Betula alba*, both on the large trees and small ones. From the end of May to the middle of August.

The occurrence of "witches' besoms" are by no means uncommon on birch in this country, and if they are produced by this fungus, as Professor Sadebeck asserts, the species must be recorded here.

C. SPECIES THE POSITION OF WHICH IS AT PRESENT UNCERTAIN.

8. *Ascomyces Juglandis.* Berk.

Hypophyllous, effused, snow-white on the nerves of the leaves; sporidia ovoid, hyaline.

Ascomyces Juglandis—Berk., "Outl.," p. 376; Cooke, "Handbk.," No. 2235. *Gymnosporium leucosporum*—Mont., "Syll.," p. 390.

On walnut-leaves, *Juglandis regia.*

Name—From the tree on which it grows.

9. *Ascomyces Trientalis.* Berk.

Spots orbicular or irregular, arising from a reddish stratum.

Ascomyces Trientalis—Berk. in Cooke's "Handbk.," No. 2234.

On *Trientalis Europœa.*

Name—From the host plant.

I am informed on very competent authority that nothing but *Tubercinia trientalis* is now to be found on Mr. Berkeley's original specimens, but this is no sufficient reason for suppressing the species, seeing with what difficulty specimens are preserved.

ADDENDA.

[By a provoking oversight, the following species and notes have been omitted.]

Mollisia (*Niptera*) *Curreiana* (nov. sp.).

Disc very dark bluish-grey, almost black, margined, round or irregular, not a line wide; excipulum composed of small, distinctly outlined cells; sporidia colourless, narrowly turbinate, elliptic or curved, 8—10 × 2μ.

Patellaria palustris—Currey in "Linn. Trans.," xxiv. p. 155, t. 25; B. and Br., "Ann. Nat. Hist.," No. 1080; Cooke, "Handbk.," No. 2173.

On dead rushes in water.

Cups $\frac{3}{4}$ of a line broad; hymenium plane, margin distinct; asci cylindraceo-clavate, about 55μ long by 5μ broad. In the original specimen the cups are seated on a sooty-black space having the appearance of a tapesium. They much resemble *Mollisia palustris* (Rob.) in size, colour, and consistence. [It should stand next to *M. epithallina*, p. 173.]

Paul's Cray! (Mr. Frederick Currey).

Lachnea (*Scutellinia*) *setosa*. (Nees.)

Gregarious, sessile, concave, orange-colour; clothed externally with long, erect, brown hairs; asci cylindrical; sporidia 8, narrowly elliptic, smooth, 20 × 10μ; paraphyses filiform, subclavate at the apices.

Peziza setosa—Nees, "Sys.," p. 260, f. 275; Fries,

"Sys. Myco.," ii. p. 87; Weinm., p. 439 (?); Crouan, "Flo. Fin.," p. 52; Cooke, "Grevillea," iii. fig. 220; "Mycogr.," fig. 133. *Humaria setosa*—Fckl., "Symb. Myco.," p. 321.

Exs.—Phil., "Elv. Brit.," No. 161.

On rotten trunks. Autumn.

Cups 2½ lines broad; marginal hairs 400 to 500μ long, attenuated upwards, septate, brown. [It should stand next to *L. scutellata*, on page 222.]

Name—*Seta*, a bristle or hair.

Downton, Salop!

Lachnella flammea. (A. and S.)

Sessile, at first closed, subglobose, then expanded, cupulate, hemispherical, bright red; hymenium the same colour; flesh firm, black; asci cylindraceo-clavate; sporidia 8, oblong, rounded at the ends, straight or slightly bent, becoming pseudo-uniseptate, 10—15 × 3μ; paraphyses filiform.

Peziza flammea—A. and S. in "Consp.," p. 319, t. 11, f. 7; D. C., "Flo. Fr.," p. 24; Pers., "Myco. Eur.," p. 252; Fries, "Sys. Myco.," ii. p. 96; Karst., "Pez. et Ascob.," p. 19; "Mon. Pez.," p. 186; "Myco. Fenn.," p. 151; Nyl., "Pez. Fenn.," p. 28.

Exs.—Rabh., "Herb. Myco.," ed. ii. No. 22; Karst., "Fung. Fenn.," No. 37; Phil., "Elv. Brit.," No. 72; Rehm, "Asco.," No. 418.

On decorticated branches of *Salix aurita*.

Cups about ½ a line broad; consistence dry and firm; hairs red and granular. [Its place is next to *L. papillaris*, p. 257.]

Name—*Flammea*, a flame; from the colour.

Aviemore, N.B.! (Rev. Dr. Keith).

Calloria retrusa. (Phil. and Plow.)

Minute, scattered, at first concealed by the epidermis, then erumpent, sessile, hemispherical or oblong, straw-coloured, smooth; asci clavate; sporidia 8, biseriate, oblong-elliptic, 17—19 × 5μ; paraphyses not seen.

Peziza (*Mollisia*) *retrusa*—Phil. and Plow. in "Grevillea," iv. p. 122, t. 62, f. 6.

Exs.—Phil., "Elv. Brit.," No. 126.

On larch-leaves. May.

When dry this is found with difficulty, being contracted and concealed under a kind of lid formed of the ruptured epidermis, but when moist it is sufficiently conspicuous under a pocket-lens.

Name—*Retrusus*, hidden.

Trefriw, North Wales!

Position doubtful.

Peziza Browniana. Blox.

Cups hemispherical, sessile, horny; margin paler, ciliate; disc pallid; sporidia shortly fusiform, hyaline.

Peziza Browniana—Blox. in B. and Br.'s Notices, "Ann. Nat. Hist.," No. 1072; Cooke's "Handbk.," No. 2102.

On dead stems of *Epilobium hirsutum.* Twycross.

Allied to *P. lacustris.* The sporidia are (·00045 in.) ·011 mm. long. The colour is paler; and, when perfect, the ciliated margin, which consists of delicate, flexuous, more or less interwoven hairs, is characteristic (M. J. Berkeley).

The presence of delicate, flexuous hairs on the margin appears to ally this to *Lachnella*, but it is said to be allied to *Peziza lacustris*, Fries, which has no hairs.

Rejected species.

Peziza (*Tapesia*) *Bloxami*—B. and Br., "Ann. Nat. Hist.," No. 566; Cooke, "Handbk.," No. 2071.

No asci can be found in this, nor in a specimen found by me in North Wales.

Peziza (*Dasyscypha*) *friabilis*—Phil. and Plow. in "Grevillea," iv. p. 121.

This turns out to be a very abnormal form of a *Schmitzomia*, which quite misled me.

Peziza hispidula, Schrad.—Cooke, "Handbk.," No. 2044.

So far as British specimens under this name that I have seen are concerned, they prove to belong to the genus *Excipula*, Fries.

Peziza Scirpi—Rabh., "Herb. Myco.," No. 730; Phil., "Elv. Brit.," No. 183; Cooke, "Fung. Brit.," No. 375.

[This should have been given as a synonym under *Belonidium lacustre* (Fries), p. 149.]

GLOSSARY OF TERMS.

Abbreviated, suddenly shortened.
Acerose, linear and sharp-pointed, like a needle.
Acicular, needle-shaped.
Acuminate, coming gradually to a point.
Adherent, sticking together.
Adnate, attached, adhering by growth.
Adpressed, pressed together.
Æruginous, verdigris-green colour.
Agglutinate, glued together.
Aggregate, crowded together.
Alutaceous, tan-colour or buff.
Amethyst, bluish-violet colour.
Anastomosing, uniting in a network.
Annulate, ringed.
Apiculate, terminating in a sharp but short point.
Apothecium, the organ of fructification which bears the asci, or hymenium, otherwise called the cup or the receptacle.
Applanate, flattened out or horizontally expanded.
Areolæ, spaces distinctly marked out on a surface; small cells or cavities.
Areolate, covered with areolæ.
Argillaceous, clay-colour, light brownish ash-colour.
Articulate, jointed.
Ascending, attaining a vertical position.
Asci, cells containing the sporidia; otherwise called *thecæ*.
Ascigerous, furnished with asci.
Ascus, singular of *Asci*.
Attenuated, tapered, gradually diminished in size.
Aurantiacus, pale orange-colour.

Bay, reddish-brown, inclining to chestnut-colour.
Bi- (from the Latin *bis*, twice), a prefix denoting twice or double; as *bi*seriate, in a double series.
Biguttulate, furnished with two guttulæ or drops.

Bistre, or *Bister*, blackish-brown.
Bullate, blistered, rising into convex prominences.
Byssoid, like fine flax or cotton wool; of a finely filamentous structure.

Cæspitose, growing in tufts, crowded into turf-like patches.
Campanulate, bell-shaped.
Capitulum, a little head.
Carbonaceous, black like charcoal, hard and black as if charred.
Caulicolæ, growing on herbaceous stems.
Cellular-tissue, tissue composed of cells.
Cellulose, furnished with little cells; in its more restricted meaning it indicates the substance of which the cell-wall is composed.
Celluloso-plicate, folded so as to form small cells.
Cilia, plural of *cilium*, an eyelash.
Ciliated, furnished with cilia, fringed with hairs.
Cinereous, or *Cinereus*, ash-colour, intermediate tint between black and white.
Cinnabarine, scarlet tinged with yellow, vermilion.
Cinnamomeus, of a bright brown colour.
Cinnamon, a bright brown, the colour of cinnamon bark.
Circinate, rolled inwards from the summit towards the base like a crozier.
Citron-colour, pure yellow, lemon-coloured.
Clavate, club-shaped.
Clove-brown, dark brown, the colour of cloves—the dried flower-buds of *Caryophyllus*.
Cochleate, shaped like a snail-shell.
Collapsing, falling together, as of the sides of a hollow vessel.
Compressed, pressed or squeezed together.
Concatenate, linked together, united in a continuous series.
Concentrate, to bring to a common centre.
Concentric, having a common centre.
Concolorous, of one colour, similar in colour.
Concrete, growing together, several parts united so as to form a solid body.
Confluent, merging into each other, flowing together.
Congregate, collected together in close proximity.
Conical, cone-shaped; in the form of a solid figure having a circular base, and its top terminating in a point.
Conidia, minute cells produced by abstriction at the ends of filamentous cells.
Conidiiferous, bearing conidia.
Connate, growing together, growing from one base.
Connivent, arching over to meet.
Constricted, drawn together, bound, contracted.
Contiguous, one part touching another.
Continuous, one part passing into another without any break, sometimes indicating an elongated cell without any septum.

Contorted, twisted together, twisted out of its ordinary form.
Convex, rounded on the outer surface.
Coriaceous, of a leathery consistence.
Corky, of a corky consistence.
Corrugated, wrinkled.
Cortex, rind or bark.
Costate, ribbed.
Crenate, notched, any edge cut into rounded divisions.
Crenulate, notched, indented on the edge.
Cribrose, resembling a sieve or riddle, pierced with numerous holes, pitted.
Crisped, curled, uneven with waving lines.
Crowded, pressed together.
Cruciate, having the form of a cross.
Cruciform, same as *Cruciate*.
Cup, the receptacle of fructification in the *Discomycetes*; by some called the *Apothecium*.
Cupulate, cup-shaped, formed like a little cup, slightly concave.
Cupuliform. See *Cupulate*.
Cyathiform, cup-shaped, but more deeply concave than *Cupulate* implies.
Cylindraceo-clavate, intermediate in shape between cylindrical and clavate.
Cylindrical, long, circular, and of equal diameter throughout.
Cymbiform, boat-shaped.
Cyst, a cell or cavity.

Deciduous, falling off.
Decurrent, running down.
Deflexed, bending downwards, bending outwards and downwards; the opposite of *Inflexed*.
Deformed, disfigured, distorted.
Dehiscing (*dehisco*, to gape), bursting open, splitting.
Dentate, toothed.
Denticulate, furnished with small teeth.
Depressed, pressed down or flattened; sometimes it means somewhat sunk into a concave form.
Diaphanous, transparent, pellucid.
Difformed, irregular in form, not uniform.
Dilated, expanded and flattened out.
Diluted, washy, pale, faint-coloured.
Dimidiate, semi-orbicular.
Disc, or *Disk*, the upper surface of a cup-shaped or plate-shaped receptacle bearing the fructification; generally synonymous with *Hymenium*.
Disciform, shaped like a *discus*, or quoit. See *Discoid*.
Discoid, round and flat like a coin.
Discoloured, appearing to have lost its colour, stained.

Distinct, well marked, not to be confounded with another.
Down, fine soft pubescence on the surface of anything.

Echinulate, beset with short spines.
Effused, spread out over the matrix, spread into a thin layer.
Eguttulate, without drops.
Ejected, thrown out, thrust out with force.
Ellipsoid. See *Elliptic*.
Elliptic, having the form of an ellipse, an oval rounded at the ends.
Elongated, lengthened out.
Endochrome, protoplasm of cells, cell-contents.
Entire, not divided into parts, continuous.
Epiphyllous, growing on a leaf.
Epiphytal, living upon other plants.
Epispore, the outer cell-wall of a spore.
Equal, of the same dimensions, not lop-sided.
Erose, gnawed, as if bitten irregularly.
Erumpent, bursting through the surface of the matrix in which it was embedded.
Evanescent, soon vanishing.
Excavated, hollowed out into a cavity.
Excipulum, external layer of a cup, or a perithecium, sometimes used as a synonym for *Receptacle*, which see.
Expanded, spread out, becoming less concave, as when a cup which is at first nearly closed, assumes a saucer-form.
Exserted, thrust out, protruding beyond the surface.

Farinaceous, mealy, covered with particles resembling meal.
Farinose. See *Farinaceous*.
Fascicle, a little bundle.
Fasciculate, where several similar parts originate at the same spot, and so form a bundle.
Fastigiate, when all the parts are nearly parallel, each pointing upwards.
Fawn-colour, the colour of a young deer.
Fenestrate, divided into compartments like a window.
Ferruginous, the colour of rusty iron, reddish-brown.
Fibril, a fine fibre or filament, hair-like appendage.
Fibrillose, furnished with fibrils, clothed with little loose fibres.
Filiform, thread-shape, cylindrical and slender like a thread.
Fimbriate, fringed.
Fistulose, hollow like a pipe.
Flattened, pressed down, as when a sphere is depressed, or a cylindrical body has its opposite sides brought closer together.
Fleshy, of the consistence of flesh.
Flexuose, bending gently to and fro in opposite directions.
Flocci, fine threads like wool.
Floccose, furnished with a wool-like covering, resembling a flock of wool.

Flocculose, minutely woolly. See *Floccose*.
Forked, separating into two distinct branches which are more or less apart.
Fragile, easily broken, frail.
Friable, easily crumbled, easily reduced to powder.
Fugaceous, flying or fleeting away, soon falling away.
Fuliginous, sooty-brown, brown verging on black.
Fulvous, tawny, the colour of a lion.
Furfuraceous, coated with bran-like particles.
Fuscescent, tending to become fuscous or brown.
Fuscous, or *Fuscus*, brown with a grey tinge.
Fusiform, spindle-shape.
Fuso-filiform, between fusiform and thread-shaped, very slenderly fusiform.
Fusoid, spindle-shaped.

Gelatine, the jelly-like fluid secreted by many fungi.
Gelatinous, having the consistence of jelly.
Glabrous, a surface wholly destitute of pubescence.
Glaucous, sea-green, dull green with a whitish-blue lustre.
Globose, nearly spherical.
Globulose, same as globose.
Granulate, *Granulose*, covered with small grain-like tubercles, made up of, or filled with, minute grains.
Gregarious, growing in company like a flock of sheep, not solitary.
Grumous, clotted, in clustered grains.
Guttate, *Guttulate*, furnished with one or more spherical drops; synonym for *nucleate*. As *nucleus* has now a special meaning, it has been considered better in this work to adopt the word *gutta*, *guttæ*, and *guttulate*, instead of *nucleus*, *nuclei*, and *nucleate* in describing sporidia.
Gyrose, folded and waved, or marked with wavy lines.

Hemispherical, resembling half a sphere or globe.
Hirsute, hairy.
Hispid, furnished with rigid hairs.
Horny, of the consistence of horn.
Hyaline, more or less transparent like glass.
Hymenium, the layer composed of the asci and paraphyses, the disc.
Hypha, pl. *Hyphæ*, the mycelial thread or threads from which the fungus arises.
Hypocrateriform, formed like a goblet, the shape of a cylindrical cup the margin of which turns outward.
Hypophyllous, seated on the under side of a leaf.
Hypothecium, the cellular tissue immediately beneath the hymenium, often called the subhymenial tissue.
Hysteriæform, resembling an *Hysterium*, in the form of a long narrow ridge opening by a longitudinal slit at the top.

Immarginate, without a distinct margin.
Immersed, originating beneath the surface of the matrix, or beneath the soil.
Incised, cut.
Incrassated, thickened.
Indeterminate, undefined, without any distinct boundary.
Inflated, swollen like a bladder, puffed out.
Inflexed, curved or bent inwards.
Infundibuliform, funnel-shaped, a tube below and gradually enlarging upwards.
Innate, born within, originating within the matrix or within the substance of the plant.
Innato-sessile, the base of the receptacle beneath the surface of the matrix, without a stem and somewhat immersed.
Involute, rolled inwards; applied to the margin of the cup when it is rolled inwards.
Irregular, not in a uniform line or circle, unsymmetrical.

Lacerated, torn.
Laciniate, fringed.
Lacunose, having little cavities, pitted.
Lanceolate, shaped like the head of a spear, narrow and tapering at each end.
Lateritious, of a brick-red colour.
Lentiform, lens-shaped.
Linear, in a line, where the sides of a spore or other cell are parallel, and the length considerably longer than the breadth.
Livid, pale bluish or leaden grey.
Lobate, *Lobed*, divided into lobes.
Lurid, of a dingy brown.
Lutescent, yellowish, pale yellow.
Luteus, yellow, like the flowers of woad (*Isatis tinctoria*).

Marginate, having a distinct margin.
Matrix, anything on which a fungus grows.
Mealy, covered with a scurfy powder.
Membranaceous, thin, and more or less transparent.
Mitrate, bonnet-shaped, a rounded and folded pileus.
Moniliform, necklace-like.
Mucous, slimy, of the consistence of gum.
Multi-, a prefix indicating many; as *multi*guttulate, having many guttulæ.
Muricate, rough with short points.
Muriform, where the contents of a sporidium are arranged or divided like the masonry of a stone wall.
Mycelioid, in the form of mycelium.
Mycelium, the hyphæ or filaments produced from fungus spores.

Navicular, boat-shaped; a synonym of *Cymbiform*.
Nigrescent, approaching a black colour.
Nigricant, black.
Nigro-punctate, marked with black points or dots.
Nucleate, having nuclei.
Nucleus, a homogeneous, roundish protoplasm-mass produced by the differentiation of the protoplasm of the cell.* See *Guttulate*.

Obconic, conical, but having the apex downwards.
Oblique, deviating from a right line, aslant.
Oblong, a rectangle, which is longer than it is broad, but used here of sporidia which somewhat approach this form while rounded at the ends.
Obtuse, blunt.
Ochery, the colour of ochre; synonym for *Ochraceous*.
Ochraceous, *Ochraceus*. See *Ochery*.
Olivaceous, of an olive-green colour, orange and grey.
Olive. See *Olivaceous*.
Opaque, not transparent, not shining.
Operculum, a cover or lid; applied to the membrane which is raised for the exit of the sporidia. Seen best in *Ascobolus*.
Orange, the colour of an orange; synonym of *Aurantius*.
Orbicular, of a round form, circular.
Ovate, shaped like an egg, somewhat broader at the base than the summit.
Ovoid, synonym for *Ovate*.

Pallid, pale, but undecided in colour.
Papilla, a nipple-like protuberance, often consisting of a single cell.
Papillate, covered with papillæ, or ending in a papilla.
Paraphyses, minute hyaline filaments surrounding the asci.
Parenchyma, the cellular tissue forming the interior of the receptacle. See *Pseudo-parenchyma*.
Patellate, *Patelliform*, shaped like a dish.
Pellucid, transparent, not opaque.
Peltate, formed like a pelta or shield, a shield supported in the middle on the point of a projecting body.
Perithecium, a closed receptacle containing the hymenium, as in the genus *Sphæria*, being at length perforated by a pore at the summit.
Persistent, enduring, remaining beyond the period of maturity, not soon decaying.
Pileate, furnished with a cap, having a more or less enlarged head.
Pilose, hairy.
Placentiform, a thickened circular disc, depressed in the middle both above and below.

* Sachs's "Text-Book of Bot.," 2nd ed. pp. 2, 38, 44.

Plane, flat, a level surface
Plano, used in combination; as *plano*-convex, between plane and convex.
Plicate, folded in longitudinal plaits.
Poculiform, cup-shaped.
Polari-nucleate, having nuclei at the ends of a sporidium.
Pole, the end of a sporidium.
Polygonal, having many angles.
Polymorphous, having many forms, where any plant or part of a plant has a diversity of forms.
Polysporus, having many spores.
Pore, a minute superficial hole.
Process, an extension or projection from a surface.
Produced, where a part is brought forward or lengthened out in any direction.
Protoplasm, the living contents of a cell, consisting of a combination of albuminous substances with water and small quantities of incombustible materials (ash).*
Pruinose, frosted or covered with bloom like a plum.
Pseudo-parenchyma, false parenchyma, the cellular tissue of fungi, which, although resembling true parenchyma, is not so.
Pseudo-septate, having the appearance of being septate.
Pubescent, coated with elevated extensions of the cellular tissue of the epidermis, assuming the character of minute hairs or down.
Pulverulent, dusted over, powdery.
Pulvinate, cushion-shaped, a little prominence like a cushion.
Pycnidia, receptacles enclosing stylospores.
Pyriform, pear-shaped.

Quadrate, square in form.

Receptacle, the portion of a fungus bearing the hymenium, the apothecium, the cup.
Reniform, kidney-shaped, resembling the section taken longitudinally through a kidney.
Repand, bowed, having an uneven, slightly sinuous margin.
Replicate, doubled down; so that the upper part comes in contact with the lower; folded back, as when the margin of a cup turns outwards and downwards.
Reticulated, forming a network, having veins or lines crossing like network.
Revolute, rolled backwards, as when the margin of a cup is rolled outwards.
Rigid, stiff, with slight or no flexibility.
Rimose, where a surface is covered with cracks or fissures.
Rivulose, marked with lines like the rivers in a map.
Rooting, emitting roots, extending the stem downwards into the earth or matrix in the form of a root.

* Sach's "Text-Book," 2nd ed. p. 37.

Rotundate, round, orbicular.
Rufescent, reddish brown.
Rufous, *Rufus*, full red-brown.
Ruga, a wrinkle.
Rugose, *Rugulose*, wrinkled on the surface.

Scabrous, rough, covered with minute elevations.
Scarce, rarely present, occurring here and there.
Scattered, not crowded, being at some distance apart.
Saccharine, resembling sugar, covered with shining grains like sugar.
Sclerotium, an old genus of fungi comprising hard, black, compact bodies which are now proved to be a resting condition of the mycelium of certain fungi, as of *Peziza tuberosa*, etc.
Scrobiculate, marked with little pits.
Scutellate, formed like a dish or saucer, orbicular and nearly flat.
Septate, having divisions, partitioned off into separate compartments.
Septum, the division wall of a cell.
Seriate, arranged in a row.
Serrated, toothed on the margin like the edge of a saw.
Setaceous, furnished with bristles, in the form of a bristle.
Setulose. See *Setaceous*.
Sinuate, *Sinuous*, *Sinuose*, the margin uneven with alternate concavities and convexities.
Solitary, not closely associated with others.
Spadicious, date-brown, duller and darker than bay-brown.
Spathulate, spoon-shaped, rounded at the summit and narrowed towards the base.
Spermogonia, receptacles in which spermatia are produced in fungi and lichens.
Spherical, *Spheroid*, shaped like a sphere.
Spicula, a little spike.
Sporidiiferous, bearing sporidia.
Sporidium, an ascospore, or endospore; differs from a spore in being developed within another cell.
Spurious, false, counterfeit, having only an appearance.
Squamulose, covered with small scales.
Stellate, star-shaped, radiating from a common centre.
Sterigmata, a prop, a filament which supports a spore.
Stipitate, having a stem.
Stuffed, filled with a cottony web or spongy mass distinct from the walls.
Striate, channelled, furrowed, marked with grooves.
Strigose, rough with fascicles of hairs, hispid.
Stroma, a more or less continuous layer, varying in consistence from fleshy to carbonaceous, arising from the mycelium, on which the receptacles are seated, as in the genera *Ephelis* and *Dermatea*.
Stylogonidia, gonidia formed by abstriction on the ends of special filaments.

Stylospores, stalked spores, either produced within a special receptacle, as in *pycnidia*, or unenclosed, as amongst the *Coniomycetes*.
Sub-, a prefix to another word, implying somewhat near the thing named; as *sub*globose, somewhat globose.
Subhymenial, immediately beneath the hymenium.
Subiculum, a mass of filaments, a layer of loosely compacted mycelium on or amongst which the receptacles are developed.
Subterranean, growing beneath the surface of the ground.
Subulate, awl-shaped, like a cobbler's awl.
Succulent, juicy, when the cellular tissue is abundant and replete with juices.
Sulcate, furrowed, marked by depressed parallel lines.
Sulphureous, the colour of sulphur, a pale tint of pure yellow.
Superficial, seated on the surface.
Superior, higher up, situated above another, on the top.

Tan-coloured, the colour of wash-leather; synonym of *Alutaceous*.
Tapesium, a carpet or layer of mycelium on which the receptacle is seated.
Tawny, a yellowish dark colour, a deeper shade than tan-colour.
Terete, cylindrical and tapering.
Testaceous, brick-coloured, a reddish-brown, not so bright as *lateritious*.
Thalamium, synonym for *Hymenium*.
Thickened, when the thickness of a part is relatively greater than the adjoining part; synonym for *Incrassated*.
Tomentose, covered with pubescence consisting of hair closely matted, coated with down-like hairs.
Tomentum, flocks of wool, loosely matted fibres.
Translucent, transparent, admitting rays of light, clear.
Tremellose, shaking like jelly, of a jelly-like consistence.
Tri-, a prefix denoting three; as *tri*septate, having three septa.
Truncate, terminating as if abruptly cut off.
Tuberculate, covered with pimples or tubercles, having tuberous swellings.
Tuberous, in the form of a tuber.
Tumid, swollen, inflated.
Turbinate, top-shaped, having an outline similar to a boy's spinning-top.

Umber, a dark brown, the colour of umber.
Umbilicate, having a little navel, having a little depression in the centre.
Uncinate, hooked or hook-shaped.
Undulated, waved, with gentle elevations and depressions; synonym for *Repand*.
Uni-, a prefix denoting one or the same: as *uni*septate, having one septum; *uni*form, of one form.
Uniloculer, having but one cell.

Uniseriate, in one series.
Urceolate, shaped like a pitcher with a contracted mouth.
Urn-shaped, shaped like a vase roundish in form and enlarged in the middle.

Vasculiform, having the form of a little vessel, like a common flower-pot.
Veil, a partial covering of the cup; a membranaceous, fibrous, or granulose coating stretching over the mouth of the cup, soon breaking up into fragments.
Venoso-costate, having raised lines partly resembling veins and partly ribs.
Ventricose, big-bellied, swollen out, puffed up.
Verrucose, warted.
Vesicular, like a bladder.
Villose, *Villous*, covered with long, weak hairs.
Vinous, the colour of red wine.
Vitelline, the colour of the yelk of an egg.

Waved, having an alternately concave and convex surface or margin.
Waxy, the consistence of wax.

AUTHORS QUOTED.

(*See Exsiccati*, p. 436.)

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DESCRIPTION OF PLATES.

PLATE I.

Fig. 1.—*a*, *Morchella esculenta*, nat. size; *b*, a section of the same; *c*, an ascus and paraphyses; *d*, sporidia. *c* and *d* × 400 times.

Fig. 2.—*a*, *Gyromitra esculenta*, nat. size; *b*, section of the same; *c*, an ascus and a paraphysis; *d*, a sporidium. *c* and *d* × 400 times.

Fig. 3.—*a*, *Helvella lacunosa*, nat. size; *b*, a section of the same; *c*, an ascus with two paraphyses; *d*, three sporidia. *c* and *d* × 400 times.

Fig. 4.—*a*, *Verpa rufipes*, nat. size; *b*, a section of the same; *c*, an ascus and a paraphysis; *d*, sporidia; *e*, cellular filament from the epidermis. *c*, *d*, and *e* × 400 times.

PLATE II.

Fig. 5.—*a*, *Leotia circinans*, nat. size; *b*, section of the same; *c*, an ascus with three paraphyses; *d*, two sporidia. *c* and *d* × 400 times.

Fig. 6.—*a*, *Mitrula paludosa*, nat. size; *b*, section of the upper part; *c*, an ascus; *d*, three sporidia. *c* and *d* × 400 times.

Fig. 7.—*a*, *Spathularia flavida*, nat. size; *b*, section of the same; *c*, an ascus with three paraphyses; *d*, two filiform sporidia. *c* and *d* × 400 times.

Fig. 8.—*a*, *Leptoglossum viride*, nat. size; *b*, section of the same; *c*, an ascus with two paraphyses; *d*, sporidia. *c* and *d* × 400 times.

Fig. 9.—*a*, *Geoglossum hirsutum*, nat. size; *b*, an ascus with two hooked paraphyses; *c*, a sporidium; *d*, one of the black rigid hairs from the hymenium intermixed with the asci. *b*, *c*, and *d* × 400 times.

Fig. 10.—*a*, *Rhizina undulata*, nat. size; *b*, a section of the same, showing the root-like fibrillæ; *c*, an ascus; *d*, the fusiform sporidia. *c* and *d* × 400 times.

Plate III.

Fig. 11.—*a*, *Peziza acetabulum*, nat. size; *b*, a section of the same; *c*, an ascus with a paraphysis; *d*, three sporidia. *c* and *d* × 400 times.

Fig. 12.—*a*, *Peziza cupularis*, nat. size; *b*, a section of the same; *c*, an ascus with a paraphysis; *d*, three sporidia. *c* and *d* × 400 times.

Fig. 13.—*a*, *a*, *Peziza pleurota*, nat. size; *b*, section of the same; *c*, an ascus and a paraphysis; *d*, four sporidia. *c* and *d* × 400 times.

Fig. 14.—*a*, *Peziza aurantia*, nat. size; *b*, section of the same; *c*, an ascus with a paraphysis; *d*, sporidia. *c* and *d* × 400 times.

Fig. 15.—*a*, *a*, *a*, *Peziza trachycarpa*, nat. size; *b*, a section; *c*, an ascus and a paraphysis; *d*, four sporidia. *c* and *d* × 400 times.

Plate IV.

Fig. 16.—*a*, *Peziza succosa*, two cups, nat. size; *b*, a section of a cup; *c*, an ascus with two paraphyses; *d*, four sporidia, the two lower more mature. *c* and *d* × 400 times.

Fig. 17.—*a*, *a*, *Peziza radula*, nat. size; *b*, a section of a cup; *c*, an ascus with a paraphysis; *d*, four sporidia. *c* and *d* × 400 times.

Fig. 18.—*a*, *a*, *a*, *Peziza lividula*, nat. size; *b*, a section of a cup; *c*, an ascus with a paraphysis; *d*, three sporidia. *c* and *d* × 400 times.

Fig. 19.—*a*, *Peziza Crouani*, nat. size; *b*, a cup magnified 5 times; *c*, a section of the same; *d*, an ascus with a paraphysis; *e*, four sporidia. *d* and *e* × 400 times.

Fig. 20.—*a*, *Peziza rutilans*, two cups, nat. size; *b*, a section of a cup; *c*, an ascus with a paraphysis; *d*, four sporidia. *c* and *d* × 400 times.

Fig. 21.—*a*, *Peziza corallina*, a group the nat. size; *b*, *b*, two cups slightly magnified; *c*, a section of a cup also slightly magnified; *d*, an ascus with a paraphysis; *e*, two sporidia. *d* and *e* × 400 times.

Plate V.

Fig. 22.—*a*, *Peziza omphalodes*, a group the nat. size; *b*, a group slightly magnified; *c*, a cup more highly magnified; *d*, a section of the latter, both showing the white mycelium from which they spring; *e*, an ascus with paraphyses; *f*, four sporidia. *e* and *f* × 400 times.

Fig. 23.—*a*, *a*, *Psilopezia*, nat. size; *b*, a section of the upper one; *c*, ascus with a paraphysis; *d*, seven sporidia. *c* and *d* × 400 times.

Fig. 24.—*a*, *Hymenoscypha sclerotiorum*, a group the nat. size, with the sclerotia from which they arise; *b*, a section of one; *c*, an ascus with a paraphysis; *d*, five sporidia. *c* and *d* × 400 times.

Fig. 25.—*a*, *Hymenoscypha pseudo-tuberosa*, a group the nat. size, arising from a decayed acorn; *b*, a section of a cup slightly magnified; *c*, two asci with paraphyses; *d*, six sporidia, showing their variable size. *c* and *d* × 400 times.

Fig. 26.—*a*, *Hymenoscypha coronata*, a group the nat. size; *b*, two cups magnified, one being a section; *c*, an ascus with a paraphysis; *d*, three sporidia. c and *d* × 400 times.

Fig. 27.—*a*, *Hymenoscypha Broomei*, a group the nat. size; *b*, three cups magnified; *c*, a section of a cup; *d*, two asci; *e*, six sporidia. *d* and *e* × 400 times.

Fig. 28.—*a*, *Chlorosplenium æruginosum*, a group the nat. size; *b*, two cups slightly magnified; *c*, a section of a cup; *d*, an ascus with paraphyses; *e*, seven sporidia. *d* and *e* × 400 times.

Fig. 29.—*a*, *Belonidium culmicolum*, a group the nat. size; *b*, two cups magnified 10 times; *c*, a section of a cup magnified 10 times; *d*, an immature and a mature ascus with paraphyses; *e*, four sporidia, one of which shows a gelatinous envelope not unfrequently seen to surround them. *d* and *e* × 400 times.

Fig. 30.—*a*, *Helotium ferruginosum*, a group the nat. size; *b*, three cups slightly magnified; *c*, a section of a cup slightly magnified; *d*, two asci with paraphyses; *e*, six sporidia in various stages of development. *d* and *e* × 400 times.

Fig. 31.—*a*, *Helotium claro-flavum*, a group the nat. size; *b*, a group slightly magnified; *c*, a section of a cup also magnified; *d*, an ascus with paraphyses; *e*, seven sporidia in various stages of development. *d* and *e* × 400 times.

Plate VI.

Fig. 32.—*a*, *Mollisia cinerea*, a group the nat. size; *b*, a group seen from above, slightly magnified; *c*, two cups viewed sideways, also magnified; *d*, a section of a cup; *e*, an ascus with paraphyses; *f*, twelve sporidia, representing the variation in size and form in the same individual. *e* and *f* × 400 times.

Fig. 33.—*a*, *Mollisia nervisequia*, a group the nat. size on a fragment of a leaf of *Plantago*; *b*, two cups magnified 20 times, and in two stages of development; *c*, a section of the younger one; *d*, an ascus with paraphyses; *e*, six sporidia. *d* and *e* × 400 times.

Fig. 34.—*a*, *Mollisia dilutella*, a group the nat. size; *b*, three cups magnified, showing the several stages of growth; *d*, three asci; *e*, eight sporidia, showing the degree of variability of size and shape. *d* and *e* × 400 times.

Fig. 35.—*a*, *Mollisia Bullii*, a group the nat. size; *b*, a group magnified; *c*, a section of a cup also magnified; *d*, two asci; *e*, seven sporidia, showing variation of size. *d* and *e* × 400 times.

Fig. 36.—*a*, *Mollisia cerastiorum*, a fragment of the host plant

bearing four cups, nat. size; *b*, *c*, three cups magnified, the lower one seen from above; *d*. a section of a cup also magnified; *e*, two asci; *f*, nine sporidia; *e* and *f*, × 400 times.

Fig. 37.—*a*, *Mollisia peristomialis*, a group the nat. size; *b*, three cups magnified 20 times; *c*, a section of a cup, showing the scarcely depressed hymenium; *d*, two of the teeth magnified; *e*, three asci; *f*, four sporidia. *d*, *e*, and *f* × 400 times.

Fig. 38.—*a*, *a*, *Lachnea radiculata*, nat. size; *b*, a section of a cup; *c*, one of the nearly colourless hairs from the exterior of the cup; *d*, an ascus with paraphyses; *e*, four sporidia in several stages of growth. *c*, *d*, and *e* × 400 times.

Fig. 39.—*a*, *Lachnea sepulta*, one mature cup and three young ones, nat. size; *b*, a section of a cup; *c*, a group of hairs from the exterior of the cup; *d*, an ascus with a paraphysis; *e*, three sporidia, the lower one more advanced in growth. *c*, *d*, and *e* × 400 times.

Plate VII.

Fig. 40.—*a*, *Lachnea melastoma*, nat. size, showing the black strigose filaments from which it springs; *b*, section of a cup; *c*, a group of the strigose filaments from the base; *d*, an ascus with a paraphysis; *e*, four sporidia. *c*, *d*, and *e* × 400 times.

Fig. 41.—*a*, *Lachnea trechispora*, three cups in different stages of growth, nat. size; *b*, a section of a cup; *c*, a group of hairs from the exterior of the cup (the bent one is so represented to save space); *d*, an ascus with a paraphysis; *e*, two sporidia. *c*, *d*, and *e* × 400 times.

Fig. 42.—*a*, *Lachnea Cornubiensis*, two cups the nat. size; *b*, a section of a cup; *c*, a group of hairs from the exterior of the cup; *d*, an ascus containing eight sporidia, with a paraphysis. *c* and *d* × 400 times.

Fig. 43.—*a*, *Lachnella diplocarpa*, a group the nat. size; *b*, a cup magnified; *c*, a section of the same; *d*, one of the hairs from the exterior of the cup; *e*, asci paraphyses, and filaments surmounted by fusiform spores (?); *f*, six sporidia in various conditions of development; *g*, one of the filaments, surmounted, by its fusiform spore, viewed separately. *d*, *e*, *f*, and *g* × 400 times.

Fig. 44.—*a*, *Lachnella cerina*, a group the nat. size; *b*, three cups in different stages of growth, magnified; *c*, section of a cup; *d*, hairs from near the margin of a cup; *e*, an ascus with two acerose paraphyses; *f*, seven sporidia. *d*, *e*, and *f* × 400 times.

Plate VIII.

Fig. 45.—*a*, *Lachnella cupressi*, nat. size; *b*, two cups slightly magnified; *c*, a section of a cup; *d*, the villose hairs from the exterior of a cup; *e*, ascus with paraphyses; *f*, six sporidia. *d*, *e*, and *f* × 400 times.

Fig. 46.—*a*, *Lachnella bicolor*, a group the nat. size; *b*, three cups enlarged, in different stages of growth; *c*, section of a cup; *d*, three hairs from the exterior of a cup; *e*, an ascus with two acerose paraphyses; *f*, five sporidia. *d*, *e*, and *f* × 400 times.

Fig. 47.—*a*, *Lachnella pteridis*, a group the nat. size; *b*, two cups enlarged, one young, the other more mature; *c*, a section of a cup; *d*, a group of hairs from the exterior of a cup; *e*, an ascus with a paraphysis; *f*, seven sporidia. *d*, *e*, and *f* × 400 times.

Fig. 48.—*a*, *Lachnella hyalina*, a group the nat. size; *b*, two cups in different stages of growth, magnified; *c*, a section of a cup; *d*, two asci; *e*, six sporidia. *d* and *e* × 400 times.

Fig. 49.—*a*, *Lachnella rufo-olivacea*, the nat. size; *b*, a cup magnified 10 times; *c*, a section of a cup; *d*, loose brown cells from the exterior of a cup; *e*, two asci, the one filled with coarse granular protoplasm, the other in which the sporidia are matured, with a clavate paraphysis; *f*, four sporidia in different stages of development, the pseudo-septate ones being the most mature.

Fig. 50.—*a*, *Tapesia aurelia*, a group the nat. size seated on a fragment of an oak-leaf; *b*, two cups enlarged, of different ages, showing the white tapesium from which they arise; *c*, a section of a cup; *d*, a portion of the tapesium; *e*, asci and paraphyses; *f*, seven sporidia in different stages of growth. *d*, *e*, and *f* × 400 times.

Fig. 51.—*a*, *Desmazierella acicola*, three cups nat. size; *b*, section of a cup magnified, showing the hairy hymenium; *c*, one of the rigid hairs of the exterior; *d*, an ascus; *e*, a bundle of paraphyses divided at the top in the form of bristle-like points, which rise above the surface of the hymenium; *f*, four sporidia. *d*, *e*, and *f* × 400 times.

Fig. 52.—*a*, *Pirottæa vectis*, a group the nat. size; *b*, two cups magnified; *c*, a section of a mature cup; *d*, a group of the rigid bristles from the margin of a cup; *e*, asci and paraphyses; *f*, five sporidia in different stages of growth, showing their variable shape. *d*, *e*, and *f* × 400 times.

PLATE IX.

Fig. 53.—*a*, *Boudiera areolata*, a group the nat. size: *b*, *b*, two cups magnified; *c*, a section of a cup; *d*, an ascus with paraphyses; *e*, sporidia. *d* and *e* × 400 times.

Fig. 54.—*a*, *Ascobolus viridis*, three cups the nat. size; *b*, a section of a cup; *c*, an ascus with paraphyses; *d*, three sporidia.

Fig. 55.—*a*, *Saccobolus violaceus*, a group the nat. size; *b*, a group slightly magnified; *c*, a section of a cup; *d*, asci and paraphyses; *e*, eight sporidia removed from the ascus and still enclosed in a cell, which was developed within the parent ascus; *f*, three sporidia detached from the group. *d*, *e*, and *f* × 400 times.

Fig. 56.—*a*, *Thecotheus Pelletieri*, a group the nat. size; *b*, two cups magnified; *c*, an ascus filled with sporidia; *d*, the summit of an

ascus, showing the operculum open through which the sporidia have escaped; *e* and *f*, sporidia in different stages of growth, the one at *f* being surrounded by a gelatinous envelope. *c*, *d*, *e*, and *f* × 400 times.

Fig. 57.—*a*, *Ryparobius Cookei*, a group the nat. size; *b*, a group slightly magnified; *c*, a section more highly magnified; *d*, an ascus and paraphyses; *e*, eight sporidia, showing variation in size and shape. *d* and *e* × 400 times.

Fig. 58.—*a*, *Ascophanus testaceus*, a group the nat. size seated on a piece of old sacking; *b* and *c*, cups magnified; *d*, an ascus with a paraphysis; *e*, six sporidia. *d* and *e* × 400 times.

Plate X.

Fig. 59.—*a*, *Bulgaria inquinans*, a group the nat. size seated on a piece of wood; *b*, a section of a cup; *c*, two asci in different stages of growth with paraphyses; *d*, sporidia removed from an ascus. *c* and *d* × 400 times.

Fig. 60.—*a*, *Vibrissea truncorum*, a group the nat. size; *b*, a section somewhat enlarged; *c*, an ascus and paraphyses; *d*, a filiform sporidium removed from an ascus. *c* and *d* × 400 times.

Fig. 61.—*a*, *Vibrissea Guernisaci*, a group the nat. size; *b*, one cup enlarged; *c*, section of a cup; *d*, ascus and paraphyses; *e*, a filiform sporidium detached from an ascus. *d* and *e* × 400 times.

Fig. 62.—*a* and *b*, *Ombrophila clavus*, in two forms, nat. size; *c*, section of a larger specimen; *d*, ascus with paraphyses; *e*, six sporidia. *d* and *e* × 400 times.

Fig. 63.—*a*, *Calloria vinosa*, a group the nat. size; *b*. two cups magnified; *c*, a section; *d*, two asci with paraphyses having globose heads; *e*, seven sporidia, showing variation in their form and size. *d* and *e* × 400 times.

Fig. 64.—*a*, *Encœlia fascicularis*, a group the nat. size; *b*, a section of a cup; *c*, two asci, the one immature, the other mature; *d*, four sporidia. *c* and *d* × 400 times.

Fig. 65.—*a*, *Dermatea cinnamomea*, several clusters the nat. size; *b*, a cluster breaking through the epidermis of the bark, magnified; *c*, a section of a cluster more highly magnified; *d*, an ascus and paraphysis; *e*, six sporidia in different stages of development, those with septa being most mature. *d* and *e* × 400 times.

Fig. 66.—*a*, *Cenangium Prunastri*, the nat. size, bursting through the epidermis of the matrix in tranverse elongated clusters; *b*, a cluster of ascigerous cups magnified; *c*, showing another cluster, and at a little distance, on the same piece of wood, a cluster of awl-shaped pycnidia; *d*, a section of a cluster, showing the pycnidia associated with the acigerous cups; *e*, a fragment of the interior of a pycnidium, showing the filiform sterigmata, on the summits of which are produced the stylospores *f*; *g*, three asci, one of which is immature, surrounded with the adherent paraphyses; *h*, nine sporidia. *e*, *f*, *g*, and *h* × 400 times.

Plate XI.

Fig. 67.—*a*, *Tympanis conspersa*, four clusters which have burst through the bark, the natural size; *b*, a cluster with spermogonia intermixed, slightly magnified; *c*, a section of a cluster; *d*, a portion of the interior of a spermogonium, with the filiform sterigmata; *e*, the spermatia produced on the sterigmata; *f*, asci mature and immature, surrounded with the adherent paraphyses; *g*, a number of sporidia, showing their variation in size and form. *d* and *g* × 400 times.

Fig. 68.—*a*, *Crumenula urceoliformis*, several cups on *Vaccinium* twigs, the natural size; *b*, a cup magnified; *c*, a section of the same; *d*, an ascus with paraphyses; *e*, two filiform sporidia; *f*, stylospores on their sterigmata. *d*, *e*, and *f* × 400 times.

Fig. 69.—*a*, *Ephelis Rhinanthi*, nat. size; *b*, mature cups magnified; *c*, section of a cup; *d*, an ascus with a paraphysis; *e*, four sporidia; *f*, spermatia with their sterigmata. *d*, *e*, and *f* × 400 times.

Fig. 70.—*a*, *Patellaria clavispora*, a group the nat. size; *b*, two cups magnified; *c*, section of a cup; *d*, an ascus with several paraphyses; *e*, sporidia, showing stages of growth. *d* and *e* × 400 times.

Fig. 71.—*a*, *Heterosphœria patella*, nat. size; *b*, a cup magnified; *c*, a section of a cup that has not yet split open at the top; *d*, an ascus and paraphyses; *e*, five sporidia; *f*, stylospores. *d*, *e*, and *f* × 400 times.

Fig. 72.—*a*, *Laquearia sphœralis*, a group the nat. size; *b*, a single receptacle seen from above, enlarged; *c*, a section of a receptacle more highly magnified; *d*, an ascus with paraphyses; *e*, five sporidia. *d* and *e* × 400 times.

Fig. 73.—*a*, *Propolis versicolor*, the nat. size; *b*, a single receptacle magnified; *c*, a section of the same; *d*, an ascus with paraphyses; *e*, seven sporidia removed from an ascus. *d* and *e* × 400 times.

Plate XII.

Fig. 74.—*a*, *Schmitzomia atro-alba*, the nat. size; *b*, three receptacles magnified; *c*, section of a receptacle, showing how it is immersed in the matrix; *d*, an ascus and paraphyses; *e*, a filiform sporidium. *d* and *e* × 400 times.

Fig. 75.—*a*, *Stictis pallida*, nat. size; *b*, three receptacles magnified; *c*, a section of a receptacle; *d*, an ascus with paraphyses; *e*, six sporidia. *d* and *e* × 400 times.

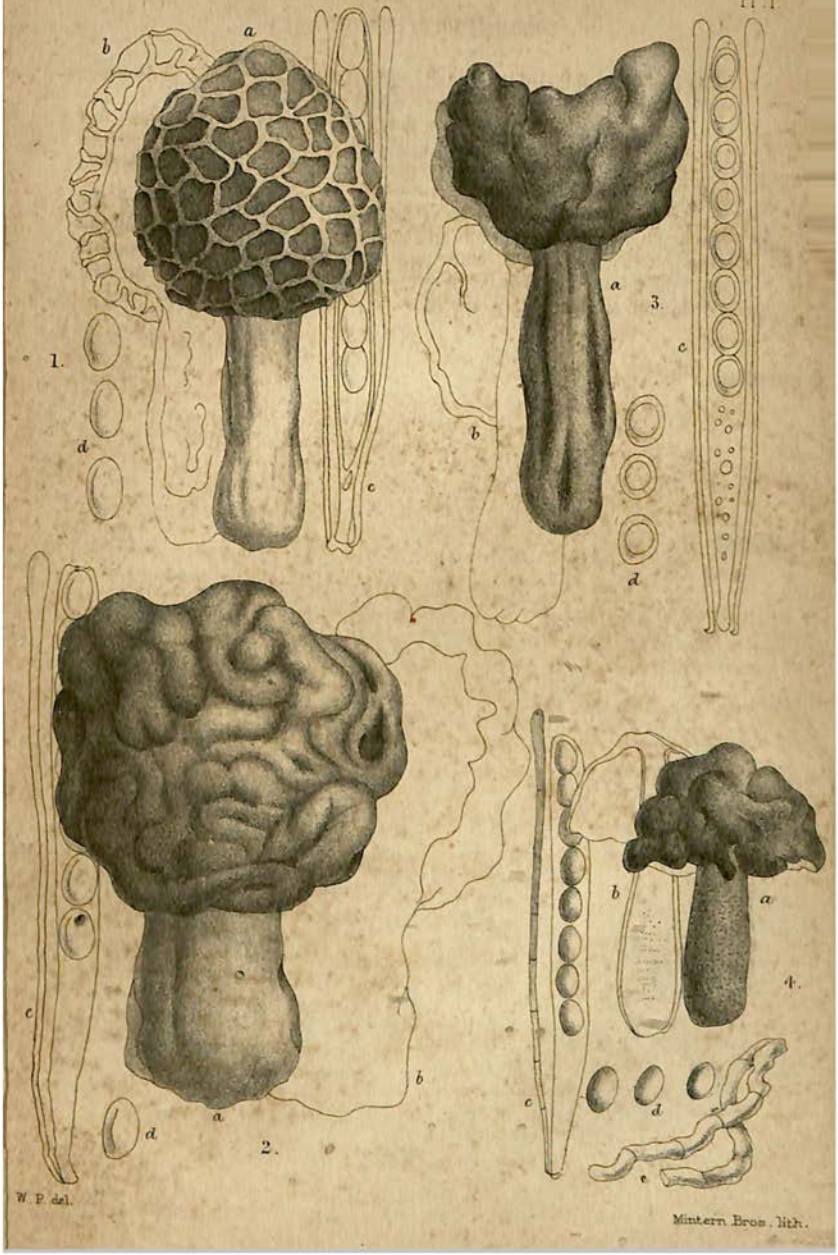
Fig. 76.—*a*, *Phacidium striatum*, the nat. size; *b*, two receptacles magnified, the one just splitting, the other having fully opened; *c*, a section; *d*, two mature asci with paraphyses; *e*, six sporidia in different stages of development. *d* and *e* × 400 times.

Fig. 77.—*a*, *Trochila craterium*, on a fragment of a leaf, the nat.

size; *b*, four receptacles magnified; *c*, sections of the same; *d*, an ascus with paraphyses; *e*, two sporidia. *d* and *e* × 400 times.

Fig. 78.—*a*, *Stegia Ilicis*, on a portion of a holly-leaf, nat. size; *b*, a receptacle magnified, showing the upper half of the perithecium splitting and becoming detached and exposing the hymenium; *c*, an ascus; *d*, five sporidia. *c* and *d* × 400 times.

Fig. 79.—*a*, *Ascomyces Potentillæ*, on a portion of a branch of the host plant, which it has much enlarged; *b*, *b*, a portion of the cellular tissue of the host plant, showing the mycelium of the *Ascomyces* ramifying between the cells of the epidermis and throwing up asci *c*, *c*, through the cuticle; *f*, sporidia. *b*, *b*, *c*, *c*, and *f* × 400 times.



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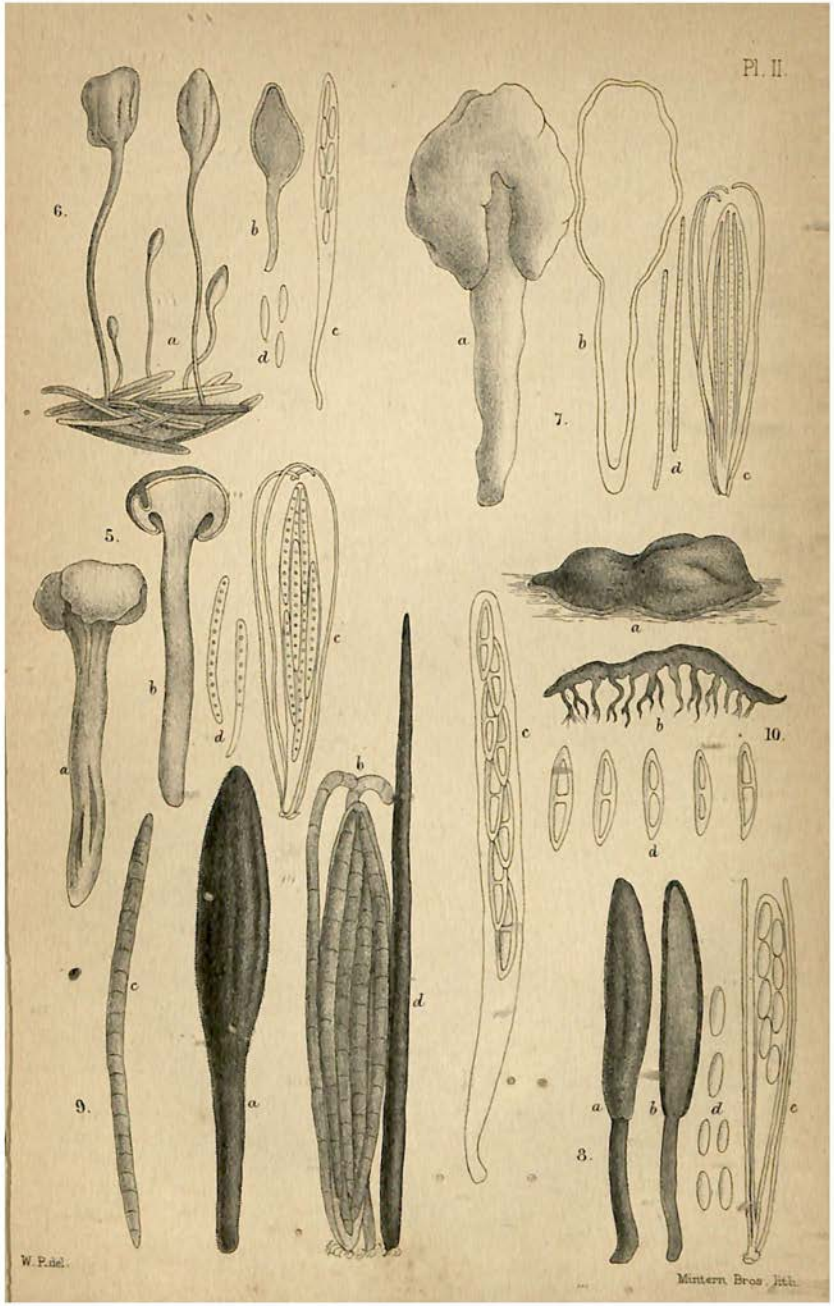

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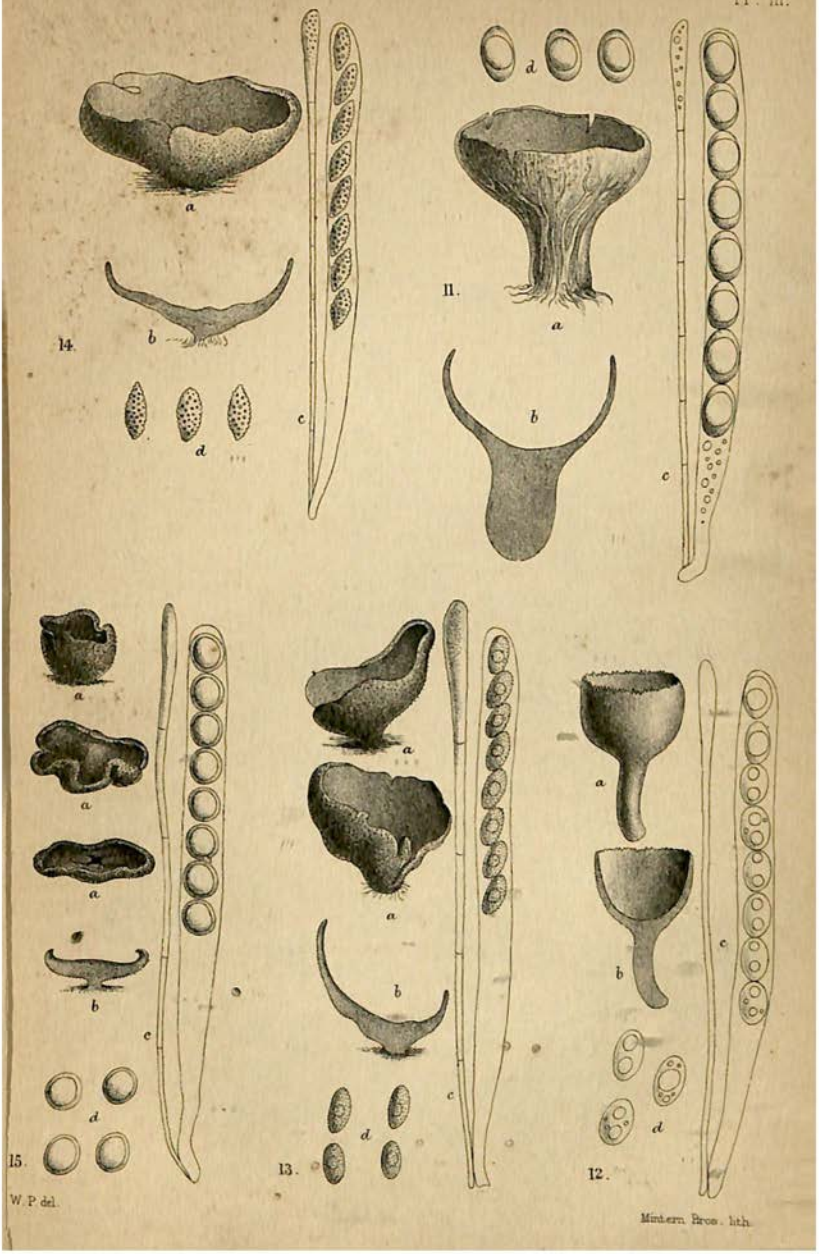

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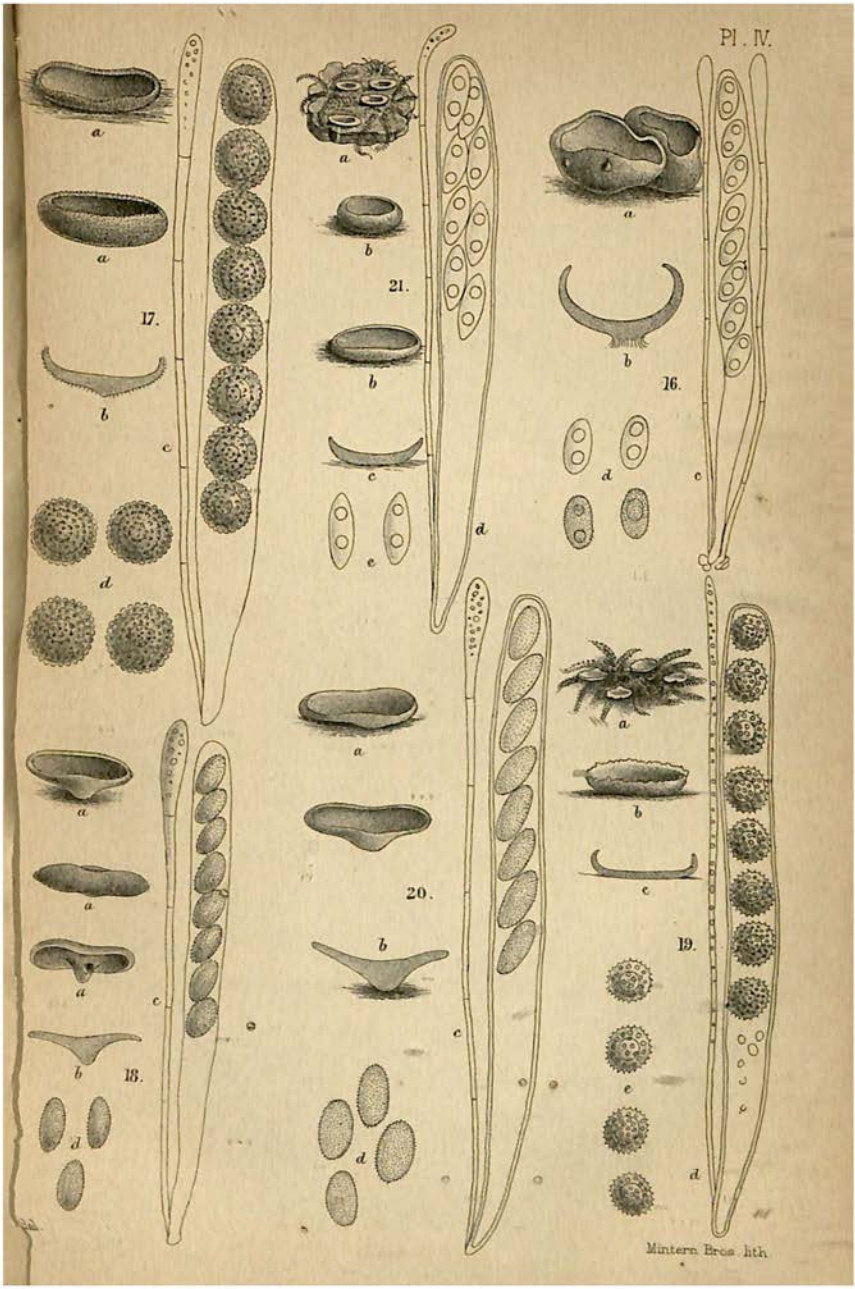
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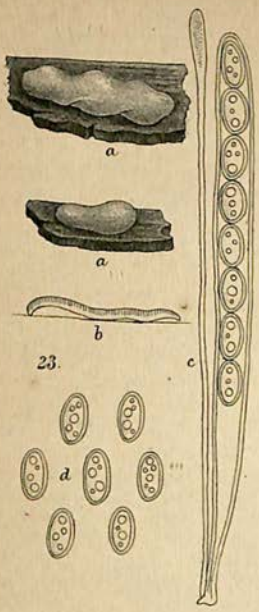
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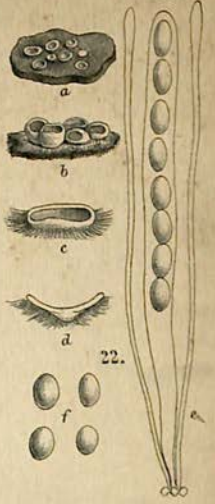
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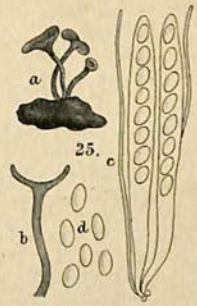
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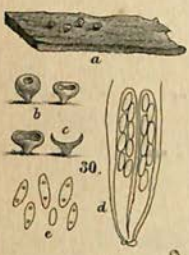
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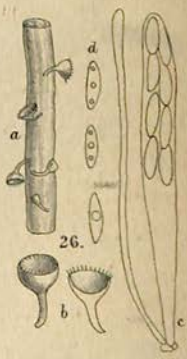
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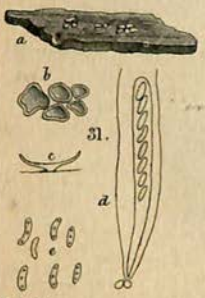
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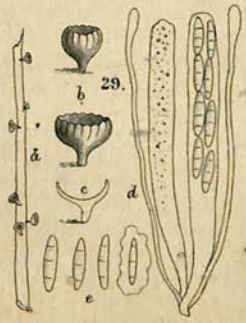
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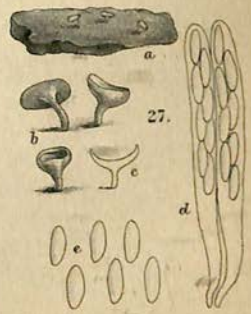
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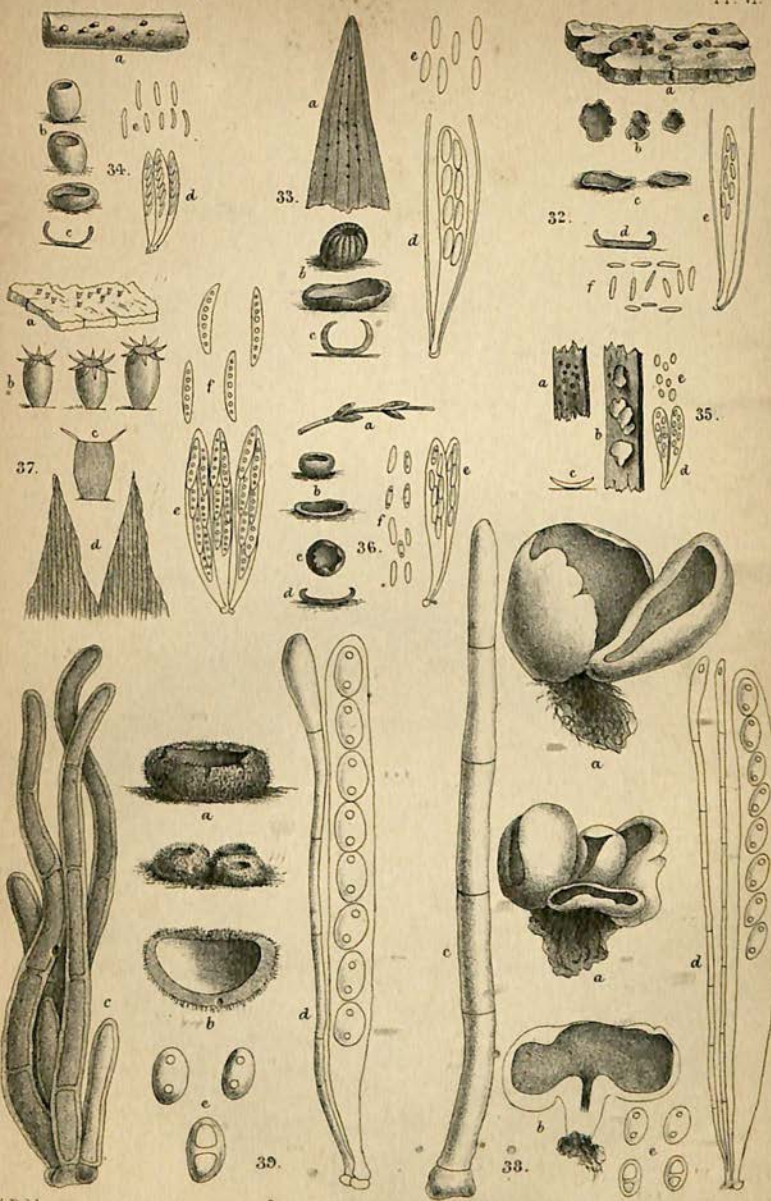

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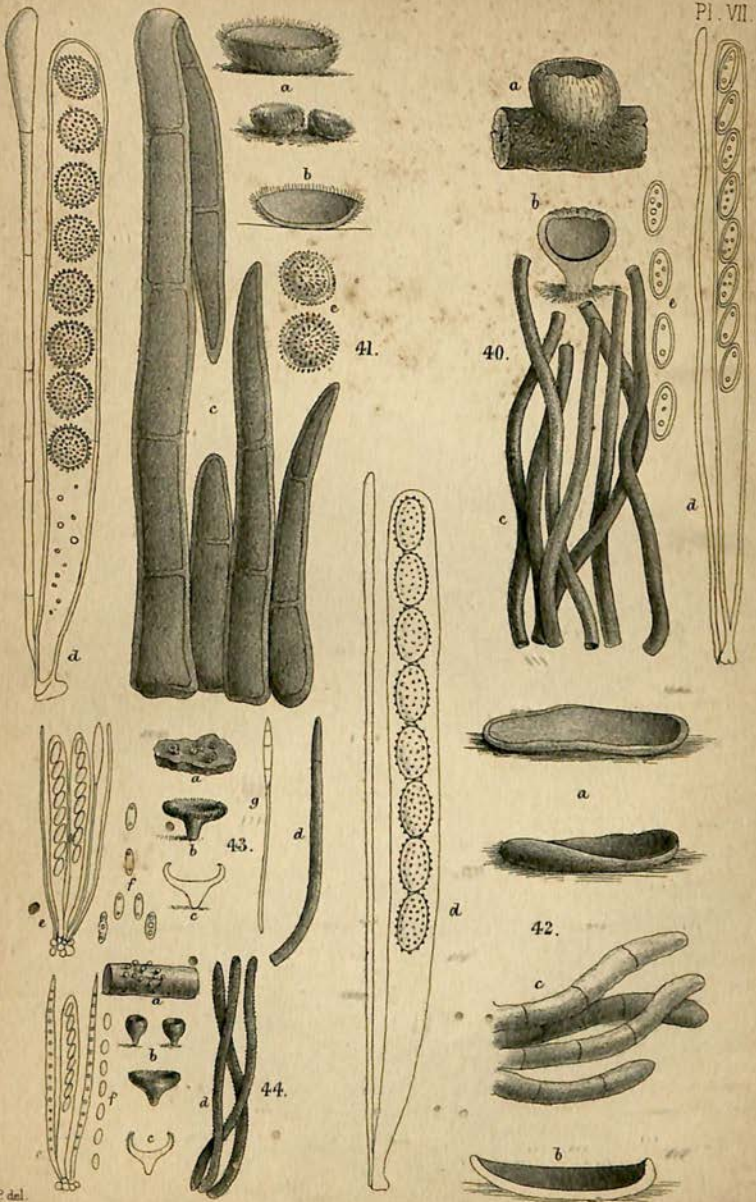

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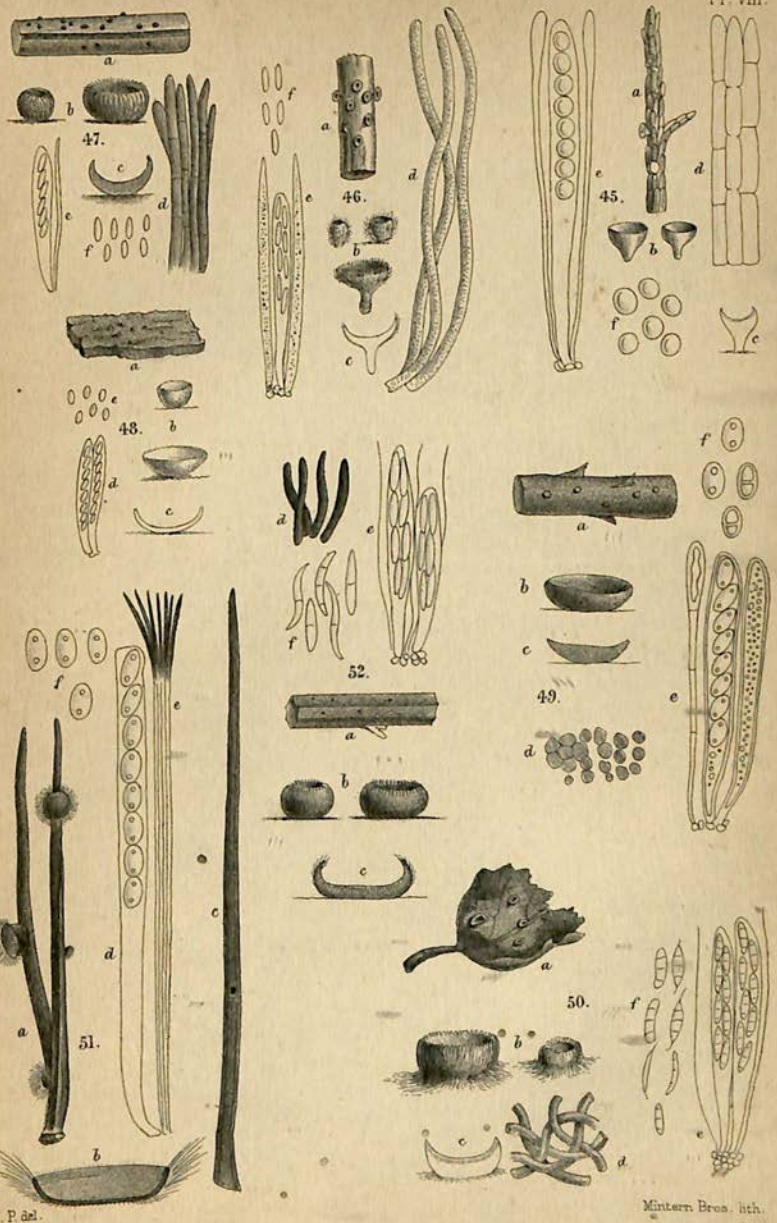

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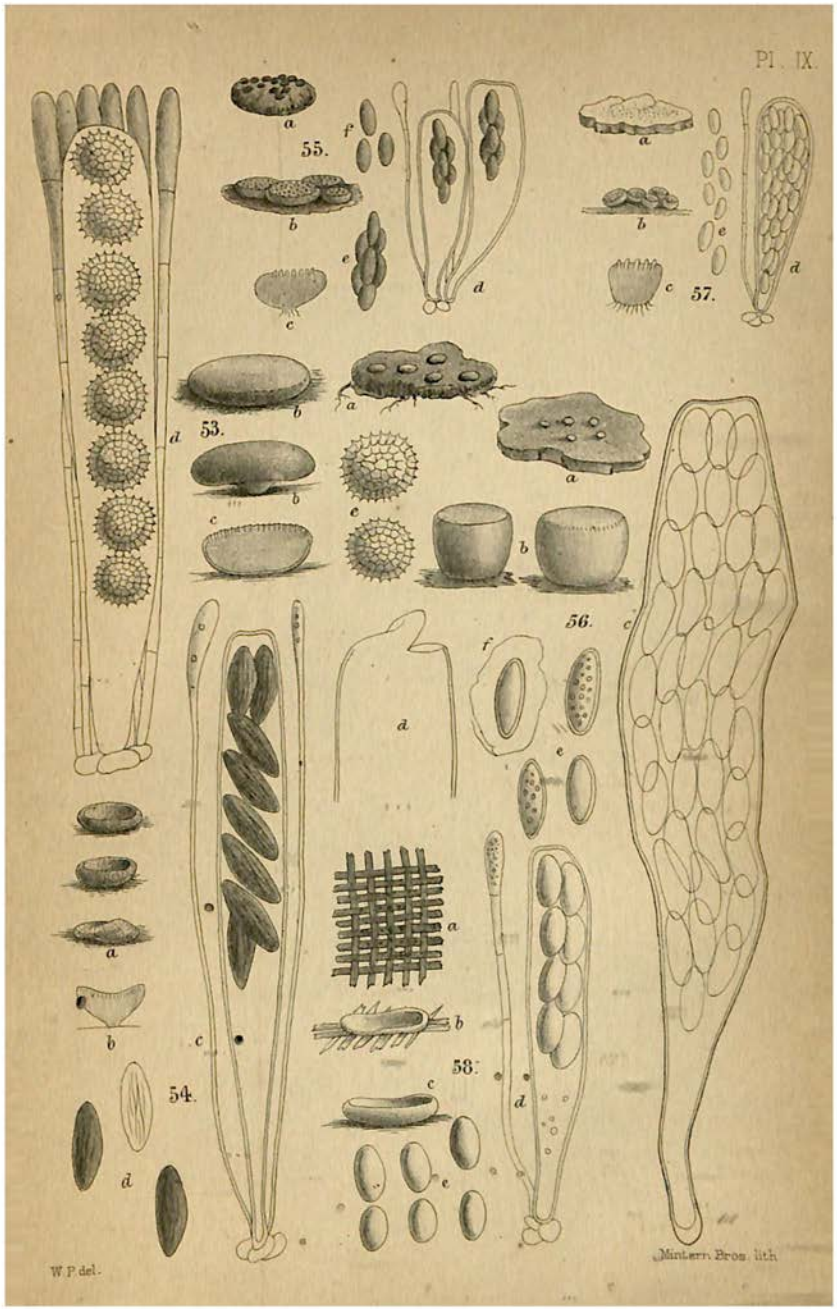

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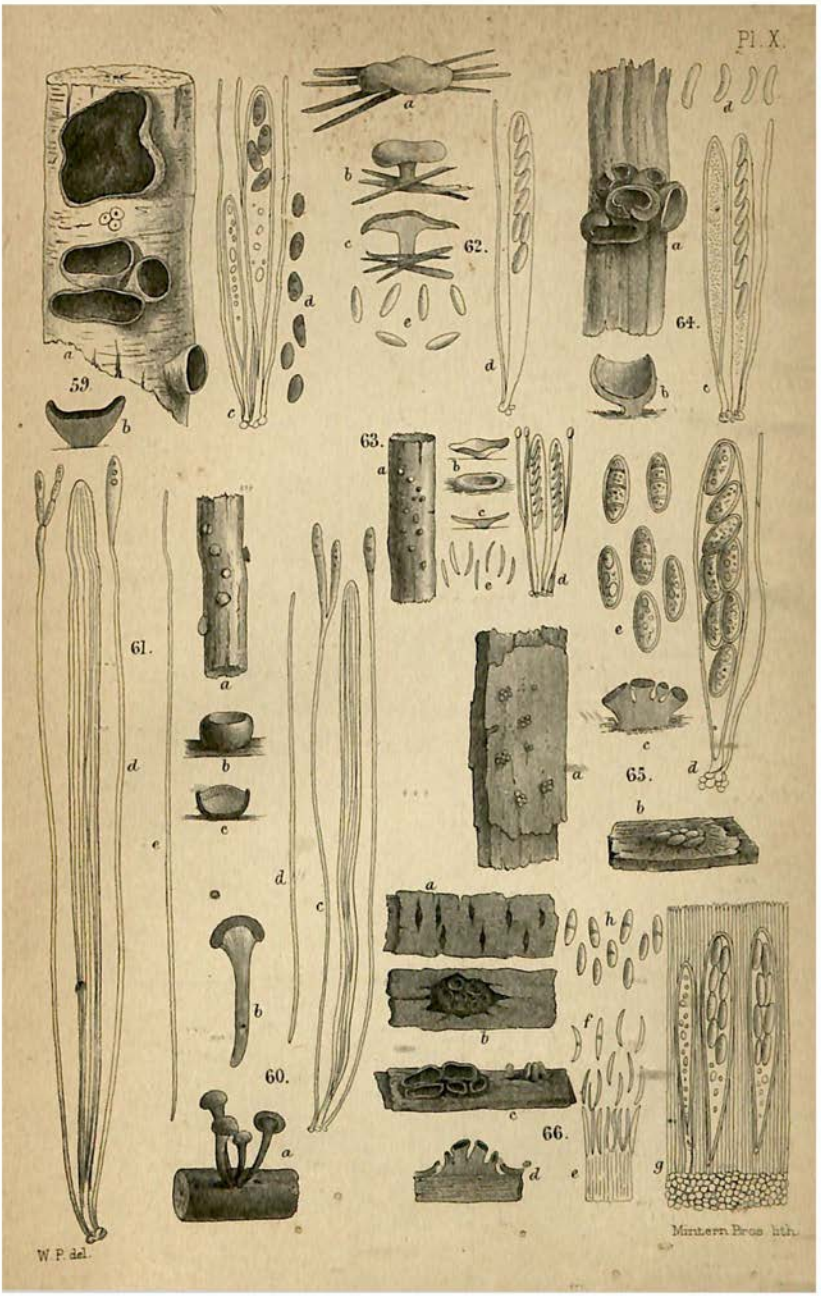
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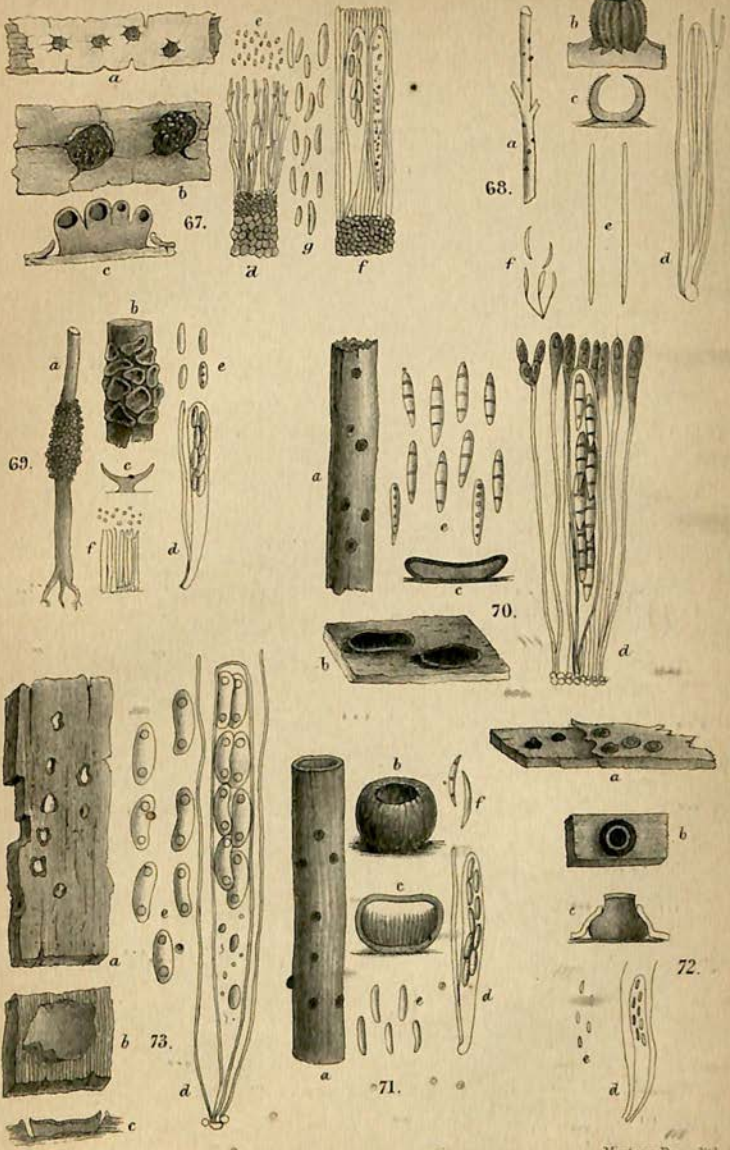

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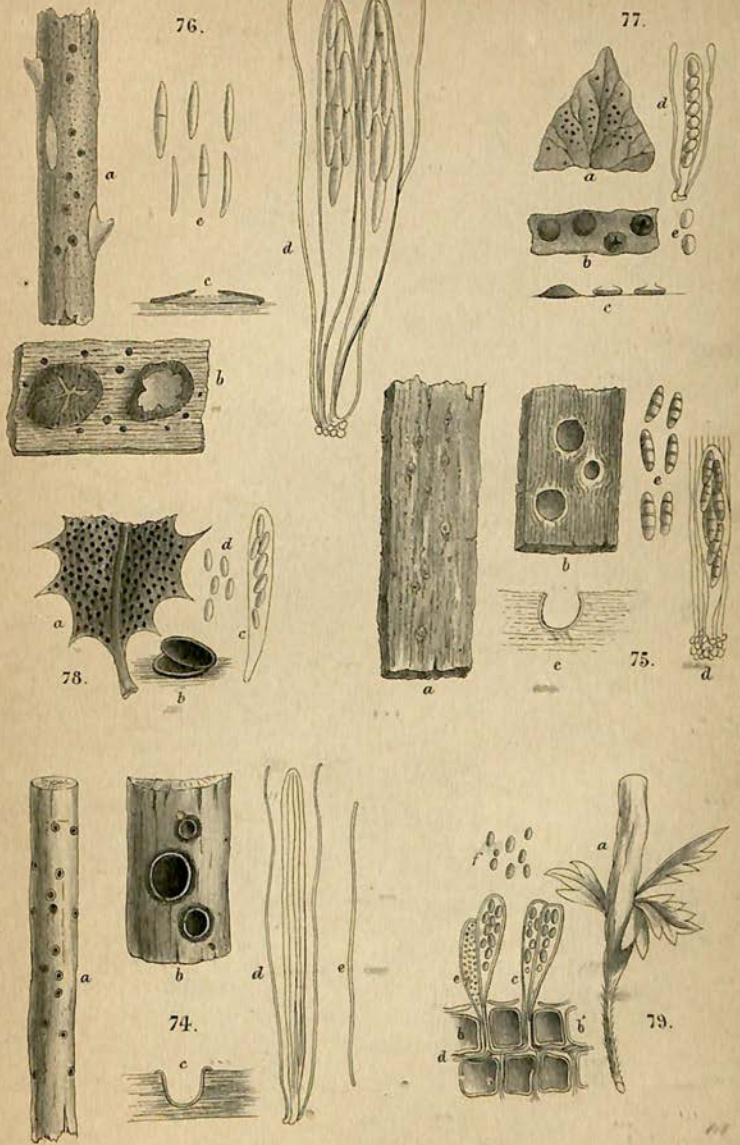
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